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CHEMICALS AND ALLIED PRODUCTS

Drugs and Pharmaceuticals

PB 95193

I. G. Farbenindustrie A. G., Ludwigshafen, Ger.
Manufacture of glycocoll, alanine and sarcosine. 1945. 10f (Text in French) Mi $1.25 Enl Pr $2.50
See PB 95193s for abstracts. 2p. Mi $1.25 Ph $1.25
1. Glycocoll—Germany 2. Alanine—Germany 3. Sarcosine—Germany 4. Micro BIOS FD 1683/48, Frames 510-517

PB 95246

I. G. Farbenindustrie A. G., Leverkusen, Ger.
Manufacturing processes for atropine and other drugs. 1945. 6f (Text in Franch) Mi $1.25 Enl Pr $2.50
See PB 95246s for abstracts. 1p. Mi $1.25 Ph $1.25
1. Atropine—Germany 2. Drugs—Production—Germany 3. Micro BIOS FD 1666/48, Frames 404-408

Dyes

PB 93096

I. G. Farbenindustrie A. G., Höchst, Ger.
Dyestuff intermediates. n.d. 41f (Text in German) Mi $2.50 Enl Pr $7.50
See PB 93096s for abstracts. 1p. Mi $1.25 Ph $1.25
1. Dyes—Intermediates—Germany 2. Micro BIOS FD 259/47, Frames 1-40

PB 95240

I. G. Farbenindustrie A. G., Ludwigshafen, Ger.
Dyestuffs for viscose. 1945. 3f (Text in French) Mi $1.25 Enl Pr $2.50
See PB 95240s for abstracts. 1p. Mi $1.25 Ph $1.25
1. Viscose—Dyes—Germany 2. Micro BIOS FD 1665/48, Frames 402-403

Agricultural Chemicals

PB 95241

Deutsche Gold- und Silberscheideanstalt, Rheinfelden, Ger.
Manufacture of silicic acid type K3, aerosol. n.d. 10f (Text in French) Mi $1.25 Enl Pr $2.50
See PB 95241s for abstracts. 1p. Mi $1.25 Ph $1.25
1. Aerosol (Trade name) 2. Micro BIOS FD 1659/48, Frames 248-255

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PB 95086

I. G. Farbenindustrie A. G., Schkopau, Ger.
Use of new sulphochlorides as insecticides. 1943-1944. 7f (Text in German) Mi $1.25 Enl Pr $2.50
See PB 95086s for abstracts. 1p. Mi $1.25 Ph $1.25
1. Sulphochlorides—Germany 2. Insecticides—Germany 3. Micro BIOS FD 2658/47, Frames 1-6

Plastics and Plasticizers

PB 95170

Aachen. Technische Hochschule.
Strength and wear of cog-wheels and similar appliances made of laminated synthetic resins. 1938-1939. 26f (Text in German) Mi $2.00 Enl Pr $5.00
See also PB 86141 (BIOS FR 1519); PB 90527 (FD 1507/47)
See PB 95170s for abstracts. 1p. Mi $1.25 Ph $1.25
1. Gears, Spur—Germany 2. Micro BIOS FD 4192/47, Frames 1-25

PB 92419

Crompton, A. C.
Effect of temperature of the insulation resistance of polyvinyl chloride insulated wire. May 1947. 13p graphs, table Mi $1.75 Ph $2.50
Part 1 of this report shows that for the measurement of insulation resistance of polyvinyl chloride-coated wire, the tolerance on temperature should be no more than ±0.5°C., and provides a table of correction factors for use where this tolerance if not practicable. Part 2 describes an attempt to find a formula correlating temperature and insulation resistance of polyvinyl chloride—coated wire.

PB 93080

I. G. Farbenindustrie A. G., Frankfurt am Main, Ger.
Plastic products: propane sulphanilide. 1941. 3f (Text in German) Mi $1.25 Enl Pr $2.50
See PB 93080s for abstracts. 1p. Mi $1.25 Ph $1.25
1. Propane sulphanilide—Germany 2. Micro BIOS FD 2542/47, Frames 1-2

PB 93047

I. G. Farbenindustrie A. G., Leverkusen, Ger.
Plastic products: Polychloropren for flexible hoses. 1944. 4f (Text in German) Mi $1.25 Enl Pr $2.50
See PB 93047s for abstracts. 1p. Mi $1.25 Ph $1.25
1. Hose, Plastic—Germany 2. Micro BIOS FD 2534/47, Frames 1-3

PB 93099
I. G. Farbenindustrie A. G., Leverkusen, Ger.
Plastic products. Renacit II. 1941. 3f (Text in German) Mi $1.25 Enl Pr $2.50
See PB 93099s for abstracts. 1p. Mi $1.25 Ph $1.25
I. Renacit II (Trade name) 2. Micro BIOS FD 2544/47, Frames 1-2

PB 93058
I. G. Farbenindustrie A. G., Ludwigshafen, Ger.
Cellulose acetate, plastic product. 1944. 4f (Text in German) Mi $1.25 Enl Pr $2.50
See PB 93058s for abstracts. 1p. Mi $1.25 Ph $1.25
I. Cellulose acetates—Germany 2. Micro BIOS FD 2452/47, Frames 1-3

PB 93039
I. G. Farbenindustrie A. G., Ludwigshafen, Ger.
Cohesan WP, and chloropren, plastic products. 1941-1943. 3f (Text in German) Mi $1.25 Enl Pr $2.50
See PB 93039s for abstracts. 1p. Mi $1.25 Ph $1.25
I. Adhesives—Germany 2. Cohesan (Trade name) 3. Chloropren (Trade name) 4. Micro BIOS FD 2453/47, Frames 1-2

PB 91450
I. G. Farbenindustrie A. G., Ludwigshafen, Ger.
Further tests on oppanol BU plastics. 1943-1944. 14f (Text in German) Mi $1.75 Enl Pr $3.75
See PB 91450s for abstracts. 1p. Mi $1.25 Ph $1.25
I. Polyisobutylene—Germany 2. Oppanol BU 3. Micro BIOS FD 2514/47, Frames 1-13

PB 91457
I. G. Farbenindustrie A. G., Ludwigshafen, Ger.
Igamid softeners II and I2. 1944. 3f (Text in German) Mi $1.25 Enl Pr $2.50
See PB 91457s for abstracts. 1p. Mi $1.25 Ph $1.25
I. Igamid (Trade name) 2. Micro BIOS FD 2487/47, Frames 1-2

PB 95357
I. G. Farbenindustrie A. G., Ludwigshafen, Ger.
Igamid softener I3. 1943. 16f (Text in German) Mi $1.75 Enl Pr $3.75
See PB 95357s for abstracts. 2p. Mi $1.25 Ph $1.25
I. Foils—Germany 2. Igamid (Trade name) 3. Micro BIOS FD 2488/47, Frames 1-15

PB 93045
I. G. Farbenindustrie A. G., Ludwigshafen, Ger.
Igetex SS, SIII, and S(35%, 45% and 48%). 1941-1944. 17f (Text in German) Mi $1.75 Enl Pr $3.75
See PB 93045s for abstracts. 2p. Mi $1.25 Ph $1.25
I. Igetex (Trade name) 2. Micro BIOS FD 2493/47, Frames 1-16

PB 91458
I. G. Farbenindustrie A. G., Ludwigshafen, Ger.
Lupamid, plastic product. 1941. 3f (Text in German) Mi $1.25 Enl Pr $2.50
See PB 91458s for abstracts. 1p. Mi $1.25 Ph $1.25
I. Lupamid (Trade name) 2. Micro BIOS FD 2499/47, Frames 1-2

PB 91456
I. G. Farbenindustrie A. G., Ludwigshafen, Ger.
Lupamid softener no. 9, plastic product. 1941. 17f (Text in German) Mi $1.75 Enl Pr $3.75
See PB 91456s for abstracts. 1p. Mi $1.25 Ph $1.25
I. Lupamid (Trade name) 2. Micro BIOS FD 2500/47, Frames 1-16

PB 91461
I. G. Farbenindustrie A. G., Ludwigshafen, Ger.
Lupolen H, plastic product. 1941-1944. 21f (Text in German) Mi $2.00 Enl Pr $5.00
See PB 91461s for abstracts. 2p. Mi $1.25 Ph $1.25
I. Lupolen H (Trade name) 2. Micro BIOS FD 2501/47, Frames 1-19

PB 91462
I. G. Farbenindustrie A. G., Ludwigshafen, Ger.
Moltopren types, plastic product. 1943-1944. 6f (Text in German) Mi $1.25 Enl Pr $2.50
See PB 91462s for abstracts. 1p. Mi $1.25 Ph $1.25
I. Moltopren (Trade name) 2. Micro BIOS FD 2505/47, Frames 1-5

PB 91453
I. G. Farbenindustrie A. G., Ludwigshafen, Ger.
Oppanol mass 33, plastic product. 1944. 10f (Text in German) Mi $1.25 Enl Pr $2.50
See PB 91453s for abstracts. 1p. Mi $1.25 Ph $1.25
I. Polyisobutylene—Germany 2. Oppanol 33 3. Micro BIOS FD 2520/47, Frames 1-9

PB 91476
I. G. Farbenindustrie A. G., Ludwigshafen, Ger.
Oppanol OF, plastic material. 1942. 5f (Text in German) Mi $1.25 Enl Pr $2.50
See PB 91476s for abstracts. 1p. Mi $1.25 Ph $1.25
I. Oppanol—Germany 2. Micro BIOS FD 2517/47, Frames 1-4

PB 91477
I. G. Farbenindustrie A. G., Ludwigshafen, Ger.

Oppanol OK II, OK 23, OK C—plastic products. 1941-1942. 6f (Text in German) Mi $1.25 Enl Pr $2.50
See PB 91477s for abstracts. 1p. Mi $1.25 Ph $1.25
I. Oppanol—Germany 2. Micro BIOS FD 2518/47, Frames 1-4

PB 91451
I. G. Farbenindustrie A. G., Ludwigshafen, Ger.
Oppanol strands B3 EL. 1941-1943. 5f (Text in German) Mi $1.25 Enl Pr $2.50
See PB 91451s for abstracts. 1p. Mi $1.25 Ph $1.25
I. Polyisobutylene—Germany 2. Oppanol B3 EL 3. Micro BIOS FD 2515/47, Frames 1-4

PB 91452
I. G. Farbenindustrie A. G., Ludwigshafen, Ger.
Oppanol V, plastic product. 1943. 11f (Text in German) Mi $1.75 Enl Pr $3.75
See PB 91452s for abstracts. 1p. Mi $1.25 Ph $1.25
I. Polyisobutylene—Germany 2. Oppanol V 3. Micro BIOS FD 2519/47, Frames 1-10

PB 93043
I. G. Farbenindustrie A. G., Ludwigshafen, Ger.
Plastic products "Elaol I" and "Elaol IK". 1944. 3f (Text in German) Mi $1.25 Enl Pr $2.50
See PB 93043s for abstracts. 1p. Mi $1.25 Ph $1.25
I. Softening agents—Germany 2. Elaol I (Plasticizer) 3. Elaol IK (Plasticizer) 4. Micro BIOS FD 2466/47, Frames 1-2

PB 93067
I. G. Farbenindustrie A. G., Schkopau, Ger.
Chemical constitutions. 1941-1944. 120f (Text in German) Mi $4.75 Enl Pr $16.25
See PB 93067s for abstracts. 1p. Mi $1.25 Ph $1.25
I. Plasticizers—Chemical properties—Germany 2. Micro BIOS FD 2021/47, Frames 1-119

PB 91437
I. G. Farbenindustrie A. G., Schkopau, Ger.
A comparison between Palamoll I and II and Luvipren and other polymers used as plasticizers for Igelit PCU. 1941. 13f (Text in German) Mi $1.75 Enl Pr $3.75
See PB 91437s for abstracts. 2p. Mi $1.25 Ph $1.25
I. Palamoll (Trade name) 2. Luvipren (Trade name) 3. Igelit PCU (Trade name) 4. Micro BIOS FD 2327/47, Frames 1-11

PB 93057
I. G. Farbenindustrie A. G., Schkopau, Ger.
Continuous chlorination of PCU and PC. Emulsifiers Mersolat 30 Leuna, Mersolat Wolfen, Mersolat D (Kogasin D-soap), Mersolat H, Ko-Mersolat. 1941-1944 24f (Text in German) Mi $2.00 Enl Pr $5.00
See PB 93057s for abstracts. 1p. Mi $1.25 Ph $1.25
I. Igelit PC (Trade name) 2. Igelit PCU (Trade name) 3. Emulsifiers—Germany 4. Micro BIOS FD 2287/47, Frame 24

PB 92548
I. G. Farbenindustrie A. G., Schkopau, Ger.
The emulsifier bond in highly dispersed polyvinyl chloride emulsions. 1943. 16f (Text in German) Mi $1.75 Enl Pr $3.75
See PB 92548s for abstracts. 2p. Mi $1.25 Ph $1.25
I. Polyvinyl chloride—Emulsions—Germany 2. Micro BIOS FD 2307/47, Frames incorrectly numbered

PB 95098
I. G. Farbenindustrie A. G., Schkopau, Ger.
Injection moulding powders based on Cellit, and plasticizers for same. 1942-1943. 5f (Text in German) Mi $1.25 Enl Pr $2.50
See PB 95098s for abstracts. 2p. Mi $1.25 Ph $1.25
I. Plastics—Molding, Injection—Germany 2. Micro BIOS FD 2451/47, Frame 5

PB 93090
I. G. Farbenindustrie A. G., Schkopau, Ger.
The interrelation of K-value, M-number and deformation as reflected by statistics of mass-averages. 1944. 103f (Text in German) Mi $4.50 Enl Pr $15.00
See PB 93090s for abstracts. 1p. Mi $1.25 Ph $1.25
I. Igelit PCU (Trade name) 2. K-Value 3. M-Number 4. Micro BIOS FD 2369/47, Frames 1-102

PB 91438
I. G. Farbenindustrie A. G., Schkopau, Ger.
Non-discolouring palamoll-containing Igelit PCU pastes. 1942. 17f (Text in German) Mi $1.75 Enl Pr $3.75
See PB 91438s for abstracts. 1p. Mi $1.25 Ph $1.25
I. Palamoll (Trade name) 2. Igelit PCU (Trade name) 3. Micro BIOS FD 2328/47, Frames 1-15

PB 91482
I. G. Farbenindustrie A. G., Schkopau, Ger.
Palatinol FO (Plasticizer). 1944. 3f (Text in German) Mi $1.25 Enl Pr $2.50
See PB 91482s for abstracts. 1p. Mi $1.25 Ph $1.25
I. Palatinol (Trade name) 2. Micro BIOS FD 2584/47, Frames 1-2

PB 95119
I. G. Farbenindustrie A. G., Schkopau, Ger.
Pastes of polyvinyl chloride for the coating of fabrics and manufacture of artificial leather. n.d. 18f (Text in German) Mi $1.75 Enl Pr $3.75

See PB 95119s for abstracts. 1p. Mi $1.25 Ph $1.25
1. Polyvinyl chloride—Pastes—Germany 2. Fabrics—Coatings—Germany 3. Leather, Synthetic—Germany 4. Micro BIOS FD 2340/47, Frames 1-16

PB 93038

1. G. Farbenindustrie A. G., Schkopau, Ger.
PC (Polyvinyl chloride) adhesive solutions. 1941-1942. 3f (Text in German) Mi $1.25 Enl Pr $2.50
See PB 93038s for abstracts. 1p. Mi $1.25 Ph $1.25
1. Adhesives, Plastic—Germany 2. Micro BIOS FD 2427/47, Frames 1-2

PB 93084

1. G. Farbenindustrie A. G., Schkopau, Ger.
Plastic adhesive PVJ—Butane 328. 1942. 11f (Text in German) Mi $1.75 Enl Pr $3.75
See PB 93084s for abstracts. 1p. Mi $1.25 Ph $1.25
1. Adhesives—Plastic—Germany 2. Micro BIOS FD 2543/47, Frames 1-10

PB 93092

1. G. Farbenindustrie A. G., Schkopau, Ger.
Plastic products: Acronal types 11 DP, 250D, 400D, 4500, 500, 700 (Tutonal 408) and acronal solutions. 1941-1944. 47f (Text in German) Mi $2.50 Enl Pr $7.50
See PB 93092 for abstracts. 2p. Mi $1.25 Ph $1.25
1. Acronals (Trade name) 2. Micro BIOS FD 2449/47, Frames 1-46

PB 95187

1. G. Farbenindustrie A. G., Schkopau, Ger.
Plastic products: Advisory leaflet on Perfol foils. 1944. 2f (Text in German) Mi $1.25 Enl Pr $2.50
See PB 95187s for abstracts. 1p. Mi $1.25 Ph $1.25
1. Plastics—Germany 2. Perfol (Trade name) 3. Micro BIOS FD 2477a/47, Frame 1

PB 93042

1. G. Farbenindustrie A. G., Schkopau, Ger.
Plastic products: "G58" dichloro-chloride 20. 1942. 15f (Text in German) Mi $1.75 Enl Pr $3.75
See PB 93042s for abstracts. 1p. Mi $1.25 Ph $1.25
1. Plasticizers—Germany 2. G58 (Plasticizer) 3. Micro BIOS FD 2464/47, Frames 1-14

PB 93063

1. G. Farbenindustrie A. G., Schkopau, Ger.
Plastic products: Hoe 1/145, Hoe 1102, Lu 3/140, Lu 374, Ma 9003a. 1943. 8f (Text in German) Mi $1.25 Enl Pr $2.50
See PB 93063s for abstracts. 1p. Mi $1.25 Ph $1.25
1. Plastics—Germany 2. Hö 1/145 (Impregnant) 3. Hö 1102 (Impregnant) 4. Lu 3/140 (Impregnant) 5. Lu 374 (Impregnant) 6. Ma 9003a (Impregnant) 7. Micro BIOS FD 2469/47, Frames 1-7

PB 95188

1. G. Farbenindustrie A. G., Schkopau, Ger.
Plastic products: Igamid B and U, pigmented black. 1942. 6f (Text in German) Mi $1.25 Enl Pr $2.50
See PB 95188s for abstracts. 1p. Mi $1.25 Ph $1.25
1. Plastics—Germany 2. Igamid B (Trade name) 3. Igamid U (Trade name) 4. Micro BIOS FD 2473/47, Frames 1-5

PB 95189

1. G. Farbenindustrie A. G., Schkopau, Ger.
Plastic products: Igamid B and WD. 1941-1944. 6f (Text in German) Mi $1.25 Enl Pr $2.50
See PB 95189s for abstracts. 1p. Mi $1.25 Ph $1.25
1. Adhesives—Plastic—Germany 2. Igamid B (Trade name) 3. Micro BIOS FD 2476/47, Frames 1-5

PB 95181

1. G. Farbenindustrie A. G., Schkopau, Ger.
Plastic products: Igamid B special, including special Vicat-needle test. 1944. 28f (Text in German) Mi $2.00 Enl Pr $5.00
See PB 95181s for abstracts. 2p. Mi $1.25 Ph $1.25
1. Igamid B (Trade name) 2. Micro BIOS FD 2477/47, Frames 1-26

PB 93097

1. G. Farbenindustrie A. G., Schkopau, Ger.
Plastic products: Igamid for injection moulding. 1943-1944. 34f (Text in German) Mi $2.25 Enl Pr $6.25
See PB 93097s for abstracts. 3p. Mi $1.25 Ph $1.25
1. Igamid (Trade name) 2. Plastics.—Molding, injection—Germany 3. Micro BIOS FD 2472/47, Frames 1-111, 1-28

PB 95178

1. G. Farbenindustrie A. G., Schkopau, Ger.
Plastic products: Igamid U, U5, U25 granular. 1943-1944. 43f (Text in German) Mi $2.50 Enl Pr $7.50
See PB 95178s for abstracts. 2p. Mi $1.25 Ph $1.25
1. Plastics—Germany 2. Igamid (Trade name) 3. Micro BIOS FD 2479/47, Frames 1-40

PB 95179

1. G. Farbenindustrie A. G., Schkopau, Ger.
Plastic products: Igamid U-polyurethane 41538. 1940-1943. 66f (Text in German) Mi $3.00 Enl Pr $10.00
See PB 95179s for abstracts. 2p. Mi $1.25 Ph $1.25

1. Plastics—Germany 2. Igamid U (Trade name) 3. Micro BIOS FD 2478/47, Frames 1-64

PB 95177

1. G. Farbenindustrie A. G., Schkopau, Ger.
Plastic products: Igamid UL, ULW15, ULW25. 1943-1944. 46f (Text in German) Mi $2.50 Enl Pr $7.50
See PB 95177s for abstracts. 2p. Mi $1.25 Ph $1.25
1. Igamid UL (Trade name) 2. Igamid ULW (Trade name) 3. Micro BIOS FD 2481/47, Frames 1-45

PB 95183

1. G. Farbenindustrie A. G., Schkopau, Ger.
Plastic products: Igamid ULW-Polyurethane ULW. 1941-1942. 27f (Text in German) Mi $2.00 Enl Pr $5.00
See PB 95183s for abstracts. 2p. Mi $1.25 Ph $1.25
1. Plastics—Germany 2. Igamid ULW (Trade name) 3. Micro BIOS FD 2480/47, Frames 1-25

PB 93098

1. G. Farbenindustrie A. G., Schkopau, Ger.
Plastic product: Igamid 7599 (Igamid C). 1942. 17f (Text in German) Mi $1.75 Enl Pr $3.75
See PB 93098s for abstracts. 2p. Mi $1.25 Ph $1.25
1. Igamid (Trade name) 2. Micro BIOS FD 2482/47, Frames 1-16

PB 95092

1. G. Farbenindustrie A. G., Schkopau, Ger.
Plastic products: Plastomoll OX. 1944. 9f Mi $1.25 Enl Pr $2.50
See PB 95092s for abstracts. 1p. Mi $1.25 Ph $1.25
1. Plasticizers—Germany 2. Plastomoll OX (Trade name) 3. Micro BIOS FD 2529/47, Frames 1-8

PB 93046

1. G. Farbenindustrie A. G., Schkopau, Ger.
Plastic products: Plastopal II. 1941. 7f (Text in German) Mi $1.25 Enl Pr $2.50
See PB 93046s for abstracts. 1p. Mi $1.25 Ph $1.25
1. Plastics—Germany 2. Plastopals (Trade name) 3. Micro BIOS FD 2532/47, Frames 1-6

PB 93081

1. G. Farbenindustrie A. G., Schkopau, Ger.
Plastic products: Stabilisers A. D. HRA. J; brightening agent BS. 1941-1944. 12f (Text in German) Mi $1.75 Enl Pr $3.75
See PB 93081s for abstract. 1p. Mi $1.25 Ph $1.25
1. Plastics—Stabilizing agents—Germany 2. Clearing agents—Plastics—Germany 3. Micro BIOS FD 2545/47, Frames 1-11

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PB 93048

1. G. Farbenindustrie A. G., Schkopau, Ger.
Plastic products: Textile sundry products Lu 3/140, Lu 374, Ma 9003a, Hoe 1/145, Hoe 1102. 1943. 7f (Text in German) Mi $1.25 Enl Pr $2.50
See PB 93048s for abstracts. 1p. Mi $1.25 Ph $1.25
1. Impregnants, Plastic—Germany 2. Lu 3/140 (Impregnant) 3. Lu 374 (Impregnant) 4. Ma 9003a (Impregnant) 5. Hoe 1/145 (Impregnant) 6. Hoe 1102 (Impregnant) 7. Micro BIOS FD 2539/47, Frames 1-6

PB 95087

1. G. Farbenindustrie A. G., Schkopau, Ger.
Plastic product 181, 141. 1942. 7f (Text in German) Mi $1.25 Enl Pr $2.50
See PB 95087s for abstracts. 1p. Mi $1.25 Ph $1.25
1. Plastics—Germany 2. 181, 141 (Plastic) 3. Micro BIOS FD 2540/47, Frames 1-6

PB 93076

1. G. Farbenindustrie A. G., Schkopau, Ger.
Plastic products Lu 1/143, Hoe 1/105, Lu 1/103. 1942. 13f (Text in German) Mi $1.75 Enl Pr $3.75
See PB 93076s for abstracts. 1p. Mi $1.25 Ph $1.25
1. Lu 1/143 (Trade name) 2. Lu 1/103 (Trade name) 3. Hö 1/105 (Trade name) 4. Lu 3/143 (Trade name) 5. Micro BIOS FD 2538/47, Frames 1-12

PB 91480

1. G. Farbenindustrie A. G., Schkopau, Ger.
Plasticizer "Palatinol BH". 1943. 5f (Text in German) Mi $1.25 Enl Pr $2.50
See PB 91480s for abstracts. 1p. Mi $1.25 Ph $1.25
1. Palatinol (Trade name) 2. Micro BIOS FD 2581/47, Frames 1-4

PB 93059

1. G. Farbenindustrie A. G., Schkopau, Ger.
Plasticizers for Igelit soft masses, Buna and varnishes. 1940-1944. 24f Mi $2.00 Enl Pr $5.00
Abstract for FD 2404/47 was mistakenly filmed with this report
See PB 93059s for abstracts. 2p. Mi $1.25 Ph $1.25
1. Plasticizers—Germany 2. Igelit (Trade name) 3. Rubber, Buna—Plasticizers—Germany 4. Varnishes—Plasticizers—Germany 5. Micro BIOS FD 2321/47, Frames 1-23

PB 91481

1. G. Farbenindustrie A. G., Schkopau, Ger.
Plasticizers Palatinol CN, LN, Elaol III and Elaol IV. 1942. 4f (Text in German) Mi $1.25 Enl Pr $2.50

See PB 91481s for abstracts. 1p. Mi $1.25 Ph $1.25
1. Elaol (Trade name) 2. Palatinol (Trade name) 3. Micro BIOS FD 2582/47, Frames 1-3

PB 91466

1. G. Farbenindustrie A. G., Schkopau, Ger.
Plasticizers "Palatinol FK" and "Palatinol UV". 1943-1944. 15f (Text in German) Mi $1.75 Enl Pr $3.75
See PB 91466s for abstracts. 2p. Mi $1.25 Ph $1.25
1. Palatinol (Trade name) 2. Plasticizers—Germany 3. Micro BIOS FD 2583/47, Frames 1-15

PB 93054

1. G. Farbenindustrie A. G., Schkopau, Ger.
Poly-1. 3-butylene glycol ester of benzoic acid and fast-running fatty acids as softeners for Igelit PCU. 1942. 7f (Text in German) Mi $1.25 Enl Pr $2.50
See PB 93054s for abstracts. 1p. Mi $1.25 Ph $1.25
1. Benzoic acid—Germany 2. Softening agents—Germany 3. Igelit PCU (Trade name) 4. Micro BIOS FD 2315/47, Frames 1-6

PB 95093

1. G. Farbenindustrie A. G., Schkopau, Ger.
Polystyrene EF plant. Production calculations for combs. 1942. 2f (Text in German) Mi $1.25 Enl Pr $2.50
See PB 95093s for abstracts. 1p. Mi $1.25 Ph $1.25
1. Combs—Manufacture—Germany 2. Polystyrene—Production—Germany 3. Micro BIOS FD 2557/47, Frame 1

PB 93000

1. G. Farbenindustrie A. G., Schkopau, Ger.
Preparation of samples and the constancy of electrical values of Igelit foils containing plasticizers. 1944. 9f (Text in German) Mi $1.25 Enl Pr $2.50
See PB 93000s for abstracts. 1p. Mi $1.25 Ph $1.25
1. Igelit (Trade name) 2. Micro BIOS FD 2325/47, Frames incorrectly numbered

PB 95113

1. G. Farbenindustrie A. G., Schkopau, Ger.
Process and manufacturing of Igelit PCU. 1940-1944. 86f (Text in German) Mi $3.75 Enl Pr $12.50
See PB 95113s for abstracts. 1p. Mi $1.25 Ph $1.25
1. Igelit PCU (Trade name) 2. Micro BIOS FD 2285/47, Frames 1-85

PB 93051

1. G. Farbenindustrie A. G., Schkopau, Ger.
Test conditions and methods for the standardization of the quality of Igelit powders and materials. 1939-1944. 13f (Text in German) Mi $1.75 Enl Pr $3.75
See PB 93051s for abstracts. 2p. Mi $1.25 Ph $1.25
1. Igelit (Trade name) 2. Micro BIOS FD 2370/47, Frames 1-12

PB 95097

1. G. Farbenindustrie A. G., Schkopau, Ger.
Test laboratory: Solvent Schkopau A48. 1944. 10f (Text in German) Mi $1.25 Enl Pr $2.50
See PB 95097s for abstracts. 1p. Mi $1.25 Ph $1.25
1. Plastics—Solvents—Germany 2. Schkopau A48 (Plastics solvent) 3. Micro BIOS FD 2423/47, Frames 1-10

PB 93040

1. G. Farbenindustrie A. G., Uerdingen, Ger.
Covulsan SPR and Igamid adhesive U43. 1943. 4f (Text in German) Mi $1.25 Enl Pr $2.50
See PB 93040s for abstracts. 1p. Mi $1.25 Ph $1.25
1. Adhesives—Germany 2. Covulsan SPR (Adhesive) 3. Igamid U43 (Adhesive) 4. Micro BIOS FD 2455/47, Frames 1-3

PB 92109

Ilyushin, A. S.
Theory for small elastic-plastic deformations. 1947. 19p diagr Mi $1.75 Ph $2.50
1. Plasticity—Theory—Deformation—Russia

PB 92110

Ishlinskii, A. Iu.
Stability of visco-plastic flow of a circular slab. 1947. 14p drawings Mi $1.75 Ph $2.50
1. Flow, Visco—Plastic—Russia

PB 90900

Saüreschutz G.m.b.H., Berlin
"Haveg" apparatus and "Haveg" materials. n.d. 6f (Text in German) Mi $1.25 Enl Pr $2.50
See PB 90900s for abstracts. 1p. Mi $1.25 Ph $1.25
1. Haveg (Trade name) 2. Resins, Synthetic—Germany 3. Micro BIOS FD 1766/47, Frames 1-4

Paints, Varnishes and Lacquers

PB 90959

Herberts, Kurt, & Co., Wuppertal, Ger.
Anti-fouling paints. n.d. 16f (Text in German) Mi $1.75 Enl Pr $3.75
See PB 90959s for abstracts. 1p. Mi $1.25 Ph $1.25
1. Paints—Anti-fouling—Germany 2. Micro BIOS FD 1839/46, Frames 1-16 3. BIOS FR 727, LD, Frames 1-16

PB 90958

Herberts, Kurt & Co., Wuppertal, Ger.
Insulating varnish for copper wire. 1946. 3f (Text in German) Mi $1.25 Enl Pr $2.50
See PB 90958s for abstracts. 1p. Mi $1.25 Ph $1.25
1. Insulating varnishes—Germany 2. Wire, Copper—Insulation—Germany 3. Micro BIOS FD 1835/46, Frames unnumbered

PB 91446

I. G. Farbenindustrie A. G., Schkopau, Ger.
Report, recipes and memorandum relating to synthetic varnishes. 1939-1944. 19f (Text in German) Mi $1.75 Enl Pr $3.75
S See PB 91446s for abstracts. 2p. Mi $1.25 Ph $1.25
1. Varnishes, Synthetic—Germany 2. Micro BIOS FD 2424/47, Frames 1-17

PB 91478

I. G. Farbenindustrie A. G., Ürdingen, Ger.
Phthalic anhydride and sulphur colours plants. 1932-1943. 110f (Text in German) Mi $4.50 Enl Pr $15.00
See PB 91478s for abstracts. 2p. Mi $1.25 Ph $1.25
1. Phthalic anhydride—Production—Germany 2. Colors—Germany 3. Micro BIOS FD 2558/46, Frame 110

PB 90960

Laboratorium fur Bewucksforschung, Cuxhaven, Ger.
Incrustation of ships bottoms and anti-fouling paints. 1943. 42f (Text in German) Mi $2.50 Enl Pr $7.50
See PB 90960s for abstracts. 1p. Mi $1.25 Ph $1.25
1. Ships—Bottoms—Germany 2. Paints, Anti-fouling—Germany 3. Micro BIOS FD 1840/46, Frames 1-47

PB 92422

Winter, G. and others.
Method for the determination of the corrosive action of insulating varnishes on copper. Jul 1945. 14p tables Mi $1.75 Ph $2.50
A method has been developed for estimating quantitatively the corrosive action of varnishes on copper. The influence of the surface condition of the test specimen, of humidity, of length of time of exposure, and of accelerated ageing of the varnish film have been investigated. It has been established that there is no general correlation between the Acid Value of a varnish as normally determined and its corrosive action.

Chemical Engineering and Equipment

PB 91413

Deutsche Gesellschaft für Chemisches Apparatewesen E. V., Frankfurt am Main, Ger.
Production of chemical apparatus. (Eight issues of the quarterly periodical Dechema-Erfahrungsanstausch (Dechema Exchange of Experience). 1942-1944. 218f (Text in German) Mi $7.75 Enl Pr $28.75
See PB 91413s for abstracts. 1p. Mi $1.25 Ph $1.25
1. Chemical apparatus—Manufacture—Germany 2. Micro BIOS FD 5429/45, Frames 1-219

PB 90963

I. G. Farbenindustrie A. G., Hoechst, Ger.
Manufacturing processes of nickel nitrate, nickel carbonate and K-powder. n.d. 7f (Text in German) Mi $1.25 Enl Pr $2.50
See PB 90963s for abstracts. 1p. Mi $1.25 Ph $1.25
1. Nitrates—Production—Germany 2. Nickel carbonate—Production—Germany 3. Micro BIOS FD 1844/46, Frames 1-6 4. BIOS FR 755, LD, Frames 1-6

PB 95202

I. G. Farbenindustrie A. G., Ludwigshafen, Ger.
Carbide plant. n.d. 2f (Text in German) Mi $1.25 Enl Pr $2.50
See PB 95202s for abstracts. 1p. Mi $1.25 Ph $1.25
1. Carbide plants—Germany 2. Micro BIOS FD 1651/48, Frames 144-145

PB 90888

I. G. Farbenindustrie A. G., Ludwigshafen, Ger.
Notes and reports relating to corrosion experienced in hydrogenation installations. 1941-1943. 41f (Text in German) Mi $2.50 Enl Pr $7.50
See PB 90888s for abstracts. 1p. Mi $1.25 Ph $1.25
1. Hydrogenation plants—Corrosion—Germany 2. Micro BIOS FD 1733/47, Frames 1-40

PB 91467

I. G. Farbenindustrie A. G., Ludwigshafen, Ger.
Research on stirring arrangement and stirrers. 1937. 245f (Text in German) Mi $9.00 Enl Pr $32.50
See PB 91467 for abstracts. 3p. Mi $1.25 Ph $1.25
1. Stirring apparatus—Germany 2. Micro BIOS FD 1055/47, Frames Incorrectly numbered

PB 95096

I. G. Farbenindustrie A. G., Schkopau, Ger.
Hydrogen electrolysis plants. 1937-1944. 195f (Text in German) Mi $7.00 Enl Pr $26.25
See PB 95096s for abstracts. 1p. Mi $1.25 Ph $1.25
1. Hydrogen—Electrolysis—Germany 2. Micro BIOS FD 2144/47, Frames 1-193

PB 95226

I. G. Farbenindustrie A. G., Schkopau, Ger.
Working and equipment of chlorine plant. 1938-1944. 64f (Text in German) Mi $3.00 Enl Pr $10.00
See PB 95226s for abstracts. 2p. Mi $1.25 Ph $1.25

1. Chlorine—Production—Germany 2. Micro BIOS FD 2065/47, Frames 1-63

PB 95224

Lurgi Apparatebau G.m.b.H., Frankfurt am Main, Ger.
Drawings for sulfur filters. n.d. 36f Mi $2.25 Enl Pr $6.25
Legends in German
No abstract available
1. Sulfur—Production—Germany 2. Micro BIOS FD 396/46, Frame 36

PB 90896

Metallgesellschaft A. G., Frankfurt am Main, Ger.
Plant for the chemical, metallurgical, cement, fats, and fruit juice industries, etc. 1945. 3463f (Text in German) Mi $9.00 Enl Pr $451.25
See PB 90896s for abstracts. 28p Mi $2.00 Ph $3.75
1. Chemical engineering—Germany 2. Metallurgical plants—Germany 3. Cement works—Germany 4. Fats—Manufacture—Germany 5. Fruit juice industry 6. Micro BIOS FD 1764/46, Frames unnumbered in Pts I, III-VI 7. BIOS FR 335

PB 95110

Ruhrchemie A. G., Oberhausen, Ger.
Miscellaneous information on the Oxo process and drawings of plant and equipment. 1942-1945. 106f (Text in German) Mi $4.50 Enl Pr $15.00
See PB 95110s for abstracts. 4p. Mi $1.25 Ph $1.25
1. Oxo process—Germany 2. Micro BIOS FD 5438/47, Frame 106

PB 93739

Wirtschaftlichkeitsschätzung einer phenosolvananlage ohne oelextraktion. (Economic appraisement of a phenosolvan installation without oil extraction). Mar 1944. 4p tables (Text in German) Mi $1.25 Ph $1.25
1. Phenosolvan process—Germany

Miscellaneous Chemicals

PB 94805

Adler, Erich
Über die lose gebundene schweflige säure der sulfitablauge. II. Sur chemischen natur der SO_2-bindenden substanzen. 1947. 9p graphs, tables (Text in German) Mi $1.25 Ph $1.25
Abstracts in English and Swedish
1. Sulfite liquor, Waste—Sweden 2. Svenska Träforskningsinstitutet. Träkemi och Pappersteknik. Meddelande 17

PB 95207

Deutsche Gold- und Silberscheideanstalt, Frankfurt am Main, Ger.
Report of interrogations of Dr. Fuchs on Degussa production. 1945. 34f (Text in French) Mi $2.25 Enl Pr $6.25
See PB 95207s for abstracts. 1p. Mi $1.25 Ph $1.25
1. Chemical industries—Germany 2. Micro BIOS FD 1654/48, Frame 34

PB 95201

Deutsche Gold- und Silberscheideanstalt, Rheinfelden, Ger.
The manufacture of silicon tetrachloride. 1943. 4f (Text in French) Mi $1.25 Enl Pr $2.50
See PB 95201s for abstracts. 1p. Mi $1.25 Ph $1.25
1. Silicon tetrachloride—Production—Germany 2. Micro BIOS FD 1684/48, Frames 518-521

PB 95196

Deutsche Gold- und Silberscheideanstalt, Rheinfelden, Ger.
The manufacture of sodium perborate. 1945. 11f (Text in German) Mi $1.75 Enl Pr $3.75
See PB 95196s for abstracts. 1p. Mi $1.25 Ph $1.25
1. Sodium perborate—Production—Germany 2. Micro BIOS FD 1678/48, Frame 11

PB 95197

Deutsche Gold- und Silberscheideanstalt, Rheinfelden, Ger.
The production of sodium borate. 1945. 11f Mi $1.75 Enl Pr $3.75
See PB 95197s for abstracts. 1p. Mi $1.25 Ph $1.25
1. Sodium borate—Germany 2. Micro BIOS FD 1681/48, Frame 11

PB 95203

Deutsche Gold- und Silberscheideanstalt, Rheinfelden, Ger.
Sodium percarbonate. 1945. 2f (Text in French) Mi $1.25 Enl Pr $2.50
See PB 95203s for abstracts. 1p. Mi $1.25 Ph $1.25
1. Sodium percarbonate—Production—Germany 2. Micro BIOS FD 1682/48, Frame 509

PB 94555

Drake, N. L.
Preparation of 2,2,4- tetramethylpentane. May 1942. 12p drawings Mi $1.75 Ph $2.50
1. 2,2,4-Tetramethylpentane

PB 92633

Gt. Brit. Ministry of Fuel and Power.
Report on investigations of the benzole technical committee, 1942-1946, on sludging and corrosion in benzole-absorption plants. 1947. 112p drawings, graphs, tables Available from British Information Services, 30 Rockefeller Plaza, New York 20, N. Y. $2.05
1. Sludge—Gt. Brit. 2. Benzene—Recovery—Gt. Brit.

PB 91293

I. G. Farbenindustrie A. G., Bitterfeld, Ger.
Correspondence and reports on cooling water additions and chromium containing catalysts. 1943-1944. 139f (Text in German) Mi $5.50 Enl Pr $18.75
See PB 91293s for abstract. 2p. Mi $1.25 Ph $1.25
1. Catalysts—Germany 2. Coolants, Engine—Germany 3. Akorol (Coolant) 4. Akorlett (Coolant) 5. Micro BIOS FD 2934/47, Frames 1-136

PB 93747

I. G. Farbenindustrie A. G., Höchst, Ger.
Acetoacetic orthoside. n.d. 3p Mi $1.25 Ph $1.25
1. FIAT MCF 618

PB 93758

I. G. Farbenindustrie A. G., Höchst, Ger.
Process description wetting agent 2406 N for wetting agent 2406 N purified. Dec 1946. 8p (Text in German and English) Mi $1.25 Ph $1.25
1. Wetting agents—Preparation—Germany 2. FIAT MCF 631

PB 93733

I. G. Farbenindustrie A. G., Höchst, Ger.
Rutenol-granulat. Nov 1946. 2p (Text in German) Mi $1.25 Ph $1.25
1. Rutenol—Preparation—Germany 2. FIAT MCF 566 a-b

PB 93727

I. G. Farbenindustrie A. G., Höchst, Ger.
Tetranitrocarbazol roh, preparation of. Mar 1944. 2p (Text in German) Mi $1.25 Ph $1.25
1. Carbazole, Tetranitro—Preparation—Germany 2. FIAT MCF 567

PB 93737

I. G. Farbenindustrie A. G., Leverkusen, Ger.
Blankofors and intermediates. (Nitrostilbensäur and flavornsäure). Nov 1946. 7p (Text in German) Mi $1.25 Ph $1.25
1. Blankophers (Trade name) 2. FIAT MCF 551

PB 90901

I. G. Farbenindustrie A. G., Leverkusen, Ger.
Method for the manufacture of condensation products. 1942. 7f (Text in German) Mi $1.25 Enl Pr $2.50
See PB 90901s for abstracts. 1p. Mi $1.25 Ph $1.25
1. Condensation products—Production—Germany 2. Micro BIOS FD 1767/46, Frames 1-6

PB 91159

I. G. Farbenindustrie A. G., Leverkusen, Ger.
Synthetic aromatics. n.d. 3f (Text in German) Mi $1.25 Enl Pr $2.50
See PB 91159s for abstracts. 1p. Mi $1.25 Ph $1.25
1. Aromatics, Synthetic—Production—Germany 2. Micro BIOS FD 2247/46, Frames 1-2

PB 95166

I. G. Farbenindustrie A. G., Ludwigshafen, Ger.
Decomposition of carbonyls; plant problems; substitute chemicals, connected with hydrogenation processes. 1931-1943. 105f (Text in German) Mi $4.50 Enl Pr $15.00
See PB 95166s for abstracts. 3p. Mi $1.25 Ph $1.25
1. Carbonyls—Germany 2. Hydrogenation—Germany 3. Hydrogenation plants—Germany 4. Micro BIOS FD 1040/47, Frames 1-105

PB 95227

I. G. Farbenindustrie A. G., Ludwigshafen, Ger.
Desmophen 1200, 1400A/1400B. 1943-1944. 16f (Text in Geeman) Mi $1.75 Enl Pr $3.75
See PB 95227s for abstracts. 2p. Mi $1.25 Ph $1.25
1. Desmophen (Trade name) 2. Micro BIOS FD 2461/47, Frames 2-14

PB 93044

I. G. Farbenindustrie A. G., Ludwigshafen, Ger.
Emulsion VTI. 1944. 16f (Text in German) Mi $1.75 Enl Pr $3.75
See PB 93044s for abstracts. 1p. Mi $1.25 Ph $1.25
1. Emulsions—Germany 2. Emulsion VTI (Trade name) 3. Micro BIOS FD 2467/47, Frames 1-15

PB 91472

I. G. Farbenindustrie A. G., Ludwigshafen, Ger.
Graphs, diagrams, tables and notes relating to hydrogenation. 1925-1940. 332f (Text in German) Mi $9.00 Enl Pr $45.00
See PB 91472s for abstracts. 1p. Mi $1.25 Ph $1.25
1. Hydrogenation—Germany 2. Micro BIOS FD 1726/47, Frames 1-327

PB 95206

I. G. Farbenindustrie A. G., Ludwigshafen, Ger.
Interrogation report on the high pressure research department. 1945. 3f (Text in French) Mi $1.25 Enl Pr $2.50
See PB 95206s for abstracts. 1p. Mi $1.25 Ph $1.25
1. Hydrogenation—Germany 2. Micro BIOS FD 1660/48, Frames 256-258

PB 90961

I. G. Farbenindustrie A. G., Ludwigshafen, Ger.
Manufacture of sebacic acid at Oppau. 1945. 3f (Text in German) Mi $1.25 Enl Pr $2.50
See PB 90961s for abstracts. 1p. Mi $1.25 Ph $1.25

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1. Sebacic acid—Germany 2. Micro BIOS FD 1842/46, Frames 1-3 3. BIOS FR 748 LD, Frames 1-3

PB 95200

1. G. Farbenindustrie A. G., Ludwigshafen, Ger.
Manufacture of sulphuric acid. 1945. 9f (Text in French) Mi $1.25 Enl Pr $2.50
See PB 95200s for abstracts. 1p. Mi $1.25 Ph $1.25
1. Sulfuric acid—Production—Germany 2. Micro BIOS FD 1652/48, Frames 146-154

PB 95122

1. G. Farbenindustrie A. G., Ludwigshafen, Ger.
"Pinakolin" as an additive to aviation fuel, and as intermediate product in the rubber synthesis. 1943. 7f (Text in German) Mi $1.25 Enl Pr $2.50
See PB 95122s for abstracts. 1p. Mi $1.25 Ph $1.25
1. Fuels, Aviation—Additives—Germany 2. Pinakolin (Trade name) 3. Micro BIOS FD 2867/46, Item 78, Frames 1-8

PB 95112

1. G. Farbenindustrie A. G., Ludwigshafen, Ger.
Production and use of propionic acid and calcium propionate. 1940-1944. 97f (Text in German) Mi $4.25 Enl Pr $13.75
See PB 95112s for abstracts. 2p. Mi $1.25 Ph $1.25
1. Propionic acid—Germany 2. Calcium propionate—Germany 3. Micro BIOS FD 4029/47, Frames 1-96

PB 95191

1. G. Farbenindustrie A. G., Ludwigshafen, Ger.
Tanning chemicals, surface and aniline pigments, auxiliary products for textiles. 1945. 49f (Text in French) Mi $2.50 Enl Pr $7.50
See PB 95191s for abstracts. 1p. Mi $1.25 Ph $1.25
1. Tanning agents—Germany 2. Pigments—Germany 3. Textile aids—Germany 4. Micro BIOS FD 1649/48, Frame 49

PB 91486

1. G. Farbenindustrie A. G., Schkopau, Ger.
Alkydal plant project. 1940-1945. 25f (Text in German) Mi $2.00 Enl Pr $5.00
See PB 91486s for abstracts. 2p. Mi $1.25 Ph $1.25
1. Alkydals—Germany 2. Micro BIOS FD 2585/47, Frames 1-23

PB 93073

1. G. Farbenindustrie A. G., Schkopau, Ger.
Artificial smoke and fog for A.R.P. produced from ethylidine chloride. 1941-1944. 43f (Text in German) Mi $2.50 Enl Pr $7.50
See PB 93073s for abstracts. 2p. Mi $1.25 Ph $1.25
1. Air raids—Protection—Germany 2. Fog, Artificial—Germany 3. Smoke, Artificial—Germany 4. Ethylidine chloride—Germany 5. Micro BIOS FD 2660/47, Frames 1-42

PB 92510

1. G. Farbenindustrie A. G., Schkopau, Ger.
Binding agents for varnishes and floor coverings, made of cellulose board and linoleum. 1941-1943. 24f (Text in German) Mi $2.00 Enl Pr $5.00
See PB 92510s for abstracts. 2p. Mi $1.25 Ph $1.25
1. Varnishes—Binding agents—Germany 2. Floor coverings—Binding agents—Germany 3. Linoleum—Binding agents—Germany 4. Cellulose board—Binding agents—Germany 5. Micro BIOS FD 2430/47, Frames 1-15

PB 91479

1. G. Farbenindustrie A. G., Schkopau, Ger.
Chloromethylation of naphthalene. 1943. 3f (Text in German) Mi $1.25 Enl Pr $2.50
See PB 91479s for abstracts. 1p. Mi $1.25 Ph $1.25
1. Naphthalene—Chloromethylation—Germany 2. Micro BIOS FD 2580/47, Frames 1-2

PB 91495

1. G. Farbenindustrie A. G., Schkopau, Ger.
Correspondence and patent applications referring to ethylene hydrogenation: aldol, plasticizers, extraction of solids from solutions, after-chlorinated polyvinyl chloride, polymers from monomer vinyl halides, break-down voltage of PCU-sheets. 1936- 1943. 122f (Text in German) Mi $5.00 Enl Pr $17.50
See PB 91495s for abstracts. 2p. Mi $1.25 Ph $1.25
1. Ethylene—Hydrogenation—Germany 2. Aldol—Germany 3. Plasticizers—Germany 4. Precipitation—Germany 5. Polyvinyl chloride—Production—Germany 6. Polymers—Production—Germany 7. Igelit PCU (Trade name) 8. Micro BIOS FD 2165/47, Frames 1-123

PB 91333

1. G. Farbenindustrie A. G., Schkopau, Ger.
Correspondence and reports on patents and polymerisation processes. 1942-1944. 10f table (Text in German) Mi $1.25 Enl Pr $2.50
1. Polymerisation—Products—Germany 2. Micro BIOS FD 3622/47, Frames 1-8

PB 93021

1. G. Farbenindustrie A. G., Schkopau, Ger.
Correspondence concerning properties and uses of hexane triol residues and derivatives ("Sucol" range of products). 1942-1945. 63f (Text in German) Mi $3.00 Enl Pr $10.00
See PB 93021s for abstracts. 1p. Mi $1.25 Ph $1.25
1. Hexanetriol—Germany 2. Hexanetriol—Derivatives—Germany 3. Micro BIOS FD 2118/47, Frames 1-63

PB 95222

I. G. Farbenindustrie A. G., Schkopau, Ger.
Desmophen S12 and S8 (formally 8005). 1943-1944. 6f (Text in German) Mi $1.25 Enl Pr $2.50
See PB 95222s for abstracts. 1p. Mi $1.25 Ph $1.25
I. Desmophen (Trade name) 2. Moltopren (Trade name) 3. Micro BIOS FD 2460/47, Frames 1-5

PB 91448

I. G. Farbenindustrie A. G., Schkopau, Ger.
Emulsifier 1000- cost calculations. 1939-1944. 35f (Text in German) Mi $2.25 Enl Pr $6.25
See PB 91448s for abstracts. 1p. Mi $1.25 Ph $1.25
I. Emulsifying agents—Germany 2. Micro BIOS FD 2600/47, Frames 1-34

PB 91464

I. G. Farbenindustrie A. G., Schkopau, Ger.
Emulsifier 1000—Testing and analysis of different samples. 1939-1944. 40f (Text in German) Mi $2.25 Enl Pr $6.25
See PB 91464s for abstracts. 1p. Mi $1.25 Ph $1.25
I. Emulsifiers—Germany 2. Micro BIOS FD 2601/47, Frames 1-40

PB 91463

I. G. Farbenindustrie A. G., Schkopau, Ger.
Emulsifier 1000 plant—monthly reports, 1940-1944. 65f (Text in German) Mi $3.00 Enl Pr $10.00
See PB 91463s for abstracts. 1p. Mi $1.25 Ph $1.25
I. Emulsifiers—Germany 2. Micro BIOS FD 2599/47, Frames 1-69

PB 91455

I. G. Farbenindustrie A. G., Schkopau, Ger.
Formaldehyde plant—equipment, estimates, processing directives. 1939-1944. 36f (Text in German) Mi $2.25 Enl Pr $6.25
See PB 91455s for abstracts. 1p. Mi $1.25 Ph $1.25
I. Formaldehyde—Production—Germany 2. Micro BIOS FD 2594/47, Frames 1-37

PB 93024

I. G. Farbenindustrie A. G., Schkopau, Ger.
Manufacture of perhydro ethyl benzoic acid and of perhydro ethyl benzyl benzoic acid. 1944. 4f (Text in German) Mi $1.25 Enl Pr $2.50
See PB 93024s for abstracts. 2p. Mi $1.25 Ph $1.25
I. Benzoic acid— Production—Germany 2. Micro BIOS FD 2175/47, Frames 1-3

PB 95343

I. G. Farbenindustrie A. G., Schkopau, Ger.
Miscellaneous information concerning the production of ethyl hexanol. 1944. 11f (Text in German) Mi $1.75 Enl Pr $3.75
See PB 95343s for abstracts. 1p. Mi $1.25 Ph $1.25
I. Ethyl hexanol—Germany 2. Micro BIOS FD 2121/47, Frames 1-10

PB 93085

I. G. Farbenindustrie A. G., Schkopau, Ger.
Monthly laboratory reports relating to various aspects of the production of maleic acid. 1941. 17f (Text in German) Mi $1.75 Enl Pr $3.75
See PB 93085s for abstracts. 2p. Mi $1.25 Ph $1.25
I. Maleic acid—Production—Germany 2. Micro BIOS FD 2590/47, Frames 1-16

PB 91454

I. G. Farbenindustrie A. G., Schkopau, Ger.
Monthly reports of the formaldehyde plant, 1940-1944. 80f (Text in German) Mi $3.50 Enl Pr $11.25
See PB 91454s for abstracts. 1p. Mi $1.25 Ph $1.25
I. Formaldehyde—Production—Germany 2. Micro BIOS FD 2593/47, Frames 1-77

PB 93094

I. G. Farbenindustrie A. G., Schkopau, Ger.
New sulphochloride compounds, their physiological effects and their uses in industry and pharmacy. 1943-1944. 46f (Text in German) Mi $2.50 Enl Pr $7.50
See PB 93094s for abstracts. 5p. Mi $1.25 Ph $1.25
I. Sulfochlorides—Germany 2. Micro BIOS FD 2657/47, Frames 1-45

PB 93095

I. G. Farbenindustrie A. G., Schkopau, Ger.
On the manufacture of ethylidene chloride. 1941. 6f (Text in German) Mi $1.25 Enl Pr $2.50
See PB 93095s for abstracts. 1p. Mi $1.25 Ph $1.25
I. Ethylidene chloride—Germany 2. Micro BIOS FD 2659/47, Frames 1-5

PB 93072

I. G. Farbenindustrie A. G., Schkopau, Ger.
Photographs of chemical works. 1937-1941. 163f (Text in German) Mi $6.25 Enl Pr $22.50
See PB 93072s for abstracts. 2p. Mi $1.25 Ph $1.25
I. Chemical plants—Germany 2. Micro BIOS FD 2568/47, Frames 1-162

PB 93077

I. G. Farbenindustrie A. G., Schkopau, Ger.
Production of ethylene oxide. 1938-1944. 90f (Text in German) Mi $3.75 Enl Pr $12.50
See PB 93077s for abstracts. 2p. Mi $1.25 Ph $1.25
I. Ethylene oxide—Production—Germany 2. Micro BIOS FD 2616/47, Frames 1-89

PB 93093

I. G. Farbenindustrie A. G., Schkopau, Ger.

Regeneration of palladium, silica gel acetylene and other catalysts. 1936-1944. 155f (Text in German) Mi $6.00 Enl Pr $21.25

See PB 93093s for abstracts. 1p. Mi $1.25 Ph $1.25

1. Palladium—Germany 2. Catalysts—Regeneration—Germany 3. Acetylene, Silica gel—Germany 4. Micro BIOS FD 2089/47, Frames 1-154

PB 95220

I. G. Farbenindustrie A. G., Schkopau, Ger.

Reports, correspondence etc., concerning hexane triol and its derivatives. 1938-1944. 140f (Text in German) Mi $5.50 Enl Pr $18.75

See PB 95220s for abstracts. 2p. Mi $1.25 Ph $1.25

1. Hexanetriol—Germany 2. Hexanetriol—Derivatives—Germany 3. Micro BIOS FD 2116/47, Frames 1-139

PB 93033

I. G. Farbenindustrie A. G., Schkopau, Ger.

Scientific reports on softeners. 1941-1942. 16f (Text in German) Mi $1.75 Enl Pr $3.75

See PB 93033s for abstracts. 1p. Mi $1.25 Ph $1.25

1. Softening agents—Germany 2. Micro BIOS FD 2310/47, Frames 1-15

PB 95125

I. G. Farbenindustrie A. G., Schkopau, Ger.

Separation factor and the equilibrium curve where Raoult's law holds good. 1945. 16f (Text in German) Mi $1.75 Enl Pr $3.75

See PB 95125s for abstracts. 1p. Mi $1.25 Ph $1.25

1. Chemistry, Physical—Germany 2. Raoult's law 3. Micro BIOS FD 1542/48, Frames 1-15

PB 93032

I. G. Farbenindustrie A. G., Schkopau, Ger.

Viscosity tables of softeners at different temperatures. 1943. 27f (Text in German) Mi $2.00 Enl Pr $5.00

See PB 93032s for abstracts. 1p. Mi $1.25 Ph $1.25

1. Softening agents—Germany 2. Micro BIOS FD 2306/47, Frames 1-26

PB 90935

I. G. Farbenindustrie A. G., Wolfen, Ger.

Distillation from phenol oils. 1945. 5f (Text in German) Mi $1.25 Enl Pr $2.50

See PB 90935s for abstracts. 2p. Mi $1.25 Ph $1.25

1. Oils, Phenol containing—Distillation—Germany 2. Micro BIOS FD 1789/46, Frames 1-4

PB 91165

Jagenberg-Werke A. G., Düsseldorf, Ger.

Adhesives. n.d. 105f tables (Text in German) Mi $4.50 Enl Pr $15.00

See PB 91165s for abstracts. 1p. Mi $1.25 Ph $1.25

1. Adhesives—Production—Germany 2. Micro BIOS FD 2263/46, Frames 1-192

PB 93019

Kaiser Wilhelm Institut für Eisenforschung, Clausthal, Ger.

On the cooling capacity of quenching agents, especially of aqueous salt solutions. 1945. 10f (Text in German) Mi $1.25 Enl Pr $2.50

See PB 93019s for abstracts. 2p. Mi $1.25 Ph $1.25

1. Quenching solutions—Germany 2. Micro BIOS FD 1280/47, Frames 1-9

PB 95195

Kalichemie A. G., Kellbronn, Ger.

Report on sodium plant, 1945. 2f (Text in French) Mi $1.25 Enl Pr $2.50

See PB 95195s for abstracts. 1p. Mi $1.25 Ph $1.25

1. Sodium—Production—Germany 2. Micro BIOS FD 1653/48, Frames 162-163

PB 89187

Kofler, L. and Lindpaintner, E.

Identifizierung organischer substanzen durch die mikroschmelzpunktbestimmung. (Identification of organic substances by micro—melting point determination). Mar 1939. 12p photos (Text in German) Mi $1.75 Ph $2.50

1. Organic materials—Identification—Germany

PB 93728

Krase, Norman W.

Preparation of hexyl alcohol; and of n- and iso hexylalcohols. n.d. 5p (Text in German and English) Mi $1.25 Ph $1.25

1. Hexyl alcohol—Preparation—Germany 2. FIAT MCF 568

PB 90883

Maurer, K. and Buerger, K.

Articles on synthetics and spinning materials and on the determination of sulphur in organic compounds. 1941. 17f (Text in German) Mi $1.75 Enl Pr $3.75

See PB 90883s for abstracts. 1p. Mi $1.25 Ph $1.25

1. Spinning materials—Germany 2. Synthetic materials—Germany 3. Sulfur—Determination—Germany 4. Buerger, K. 5. Micro BIOS FD 1753/47, Frames 1-16

PB 94659

Pennsylvania State College, Petroleum Regining Laboratory.

Development of a viscous damping fluid specification and the construction of a batch stripping unit for the preparation of viscous damping fluids. Mar 1947. 26p drawings, tables Mi $2.00 Ph $3.75

1. Fluids—Damping

PB 95199

Raschig, F., G.m.b.H., Ludwigshafen, Ger.
Manufacture of hydrazine. 1945. 10f (Text in French) Mi $1.25 Enl Pr $2.50
See PB 95199s for abstracts. 1p. Mi $1.25 PH $1.25
I. Hydrazine—Production—Germany 2. Micro BIOS FD 1650/48, Frame 10

PB 93740

Rosendahe, F.
Das phenosolvan-verfahren. (Phenosolvan process. (Extraction of phenols from waste water)). 1942. 1p table (Text in German) Mi $1.25 Ph $1.25
I. Phenosolvan process—Germany

PB 91410

Schmid, Alfred G.m.b.H., Laboratorium, Berlin.
Semipyrophorous substances and their application. 1940. 29f (Text in German) Mi $2.00 Enl Pr $5.00
See PB 91410s for abstracts. 3p. Mi $1.25 Ph $1.25
I. Pyrophorous substances—Germany 2. Micro BIOS FD 5298/45, Frames 1-26

PB 90954

Westfälisch-Anhaltische Sprengstoff A. G., Berlin
Miscellaneous correspondence, drawings, flow charts, etc. 1939-1942. 56f (Text in German) Mi $2.75 Enl Pr $8.75
See PB 90954s for abstracts. 3p. Mi $1.25 Ph $1.25
I. Water—Distillation—Patents 2. Powders, Explosive—Manufacture—Patents 3. Waxes, Montan—Germany 4. Nitric acid—Decomposition—Germany 5. Aniline, Tri-nitro—Germany 6. Micro BIOS FD 1821/46, Frames 3269-3320

PB 90953

Westfälisch Anhaltische Sprengstoff A. G., Berlin
Picric acid production. 1915-1917, 1926, 1932-1933. 148f (Text in German) Mi $5.75 Enl Pr $20.00
See PB 90953s for abstracts. 2p. Mi $1.25 Ph $1.25
I. Picric acid—Germany 2. Micro BIOS FD 1819/46, Frames 289-431

DETERIORATION STUDIES (INCLUDING TROPICAL DETERIORATION)

PB 94628

Leonard, John M.
NRL tropical exposure facilities. Apr 1947. 9p table Mi $1.25 Ph $1.25
In the recent war the problem of protecting material from climatic deterioration was accentuated due to the rapid failure of much of the initial equipment consigned to tropical areas. During the war a great deal of effort was directed toward the solution of this problem. In addition to the numerous endeavors made by individual laboratories throughout the country it was deem necessary to predict actual performance on the ability of tropical environment. Under the auspices of the National Defense Research Committee a tropical testing station was established on Barro Colorado Island in the Canal Zone. In the early part of 1946 this station was moved to the Fort Sherman Military Reservation and its administration subsequently assumed by the Naval Research Laboratory. This report describes the history of this station, the scope of its activities and planning for its widest possible use in the future. Facilities are described, which are adaptable to the study of numerous problems in tropical deterioration. These facilities are available to governmental agencies concerned with such problems. An outline is presented of the services which it can provide.

PB 88774

U. S. National Research Council. Prevention of Deterioration Center.
Prevention of deterioration. Advance list 3. Mar 1948. 34p Mi $1.75 Ph $4.00
I. Deterioration—Periodicals

ELECTRICAL MACHINERY, EQUIPMENT AND SUPPLIES

Communication Equipment

PB 95210

Allgemeine Elektrizitäts Gesellschaft, Berlin and Kiel, Ger.
Magnetophone sound recorder and reproducer. 1939-1946. 711f (Text in German and English) Mi $9.00 Enl Pr $92.00
See also PB 95211
See PB 95210s for abstracts. 2p. Mi $1.25 Ph $1.25
I. Magnetophones—Germany 2. Recorders, Magnetic—Germany 3. Micro BIOS FD 1124/47, Frames 1-710

PB 95211

Allgemeine Elektrizitäts Gesellschaft, Berlin and Kiel, Ger.
Magnetophone sound recorder and reproducer. 1939-1946. 756f (Text in German and English) Mi $9.00 Enl Pr $97.50
See also PB 95210
For abstract see PB 95210s
I. Micro BIOS FD 1124/47, Frames 711-1466

PB 95318

De Nardi, Basil L.
Winterization tests on radio set SCR-784. Mar 1947. 20p photos, diagr, graph, table Mi $1.75 Ph $2.50
I. Radio—Tests

PB 91423

Philips, N. V., Gloeilampen Fabriken, Eindhoven, Neth.

Radio equipment. 1941-1944. 508f (Text in German) Mi $9.00 Enl Pr $67.50

See PB 91423s for abstracts. 3p. Mi $1.25 Ph $1.25

I. Radio—Germany 2. Micro BIOS FD 5735, Frames 1-530

PB 95049

U. S. Air Force.

Beech: Replacement of radio set SCR-274-N with radio set AN/ARC-3—SCR-274-N equipped F-2, CQ-3 and C-45 series. Apr 1948. 23p photos, drawings Mi $2.00 Ph $3.75

I. Radio, Airborne

PB 88857

U. S. Air Force.

Boeing: Rework of sense antenna of radio compass AN/ARN-7—B-17H and TB-17H (Air Rescue Service Aircraft Only). Feb 1948. 3p photos, drawings, tables Mi $1.25 Ph $1.25

I. Antennas, Radio direction finders

PB 89634

U. S. Air Force.

Douglas: Installation of second command transmitter, low frequency oscillator and liaison antenna leading unit-C-54 series (ATC). Feb 1948. 30p photos, drawings Mi $2.00 Ph $3.75

I. Radio transmitters—Installation 2. Oscillators, Low frequency—Installation

PB 95307

U. S. Army.

Telephone repeaters OA-7/FC and OA-8/FC voice-frequency telephone repeater packaged equipment moisture-resistant. Oct 1947. 218p photos, diagrs, fold drawings, tables Mi $7.75 Ph $27.50

I. Repeaters, Telephone

PB 95285

U. S. War Dept.

Radio sets SCR-608-A and SCR-628-A. Jan 1944. 213p photos, fold drawings, tables Mi $7.75 Ph $27.50

I. Radio receivers (BC-683-A) 2. Radio transmitters (BC-684-A)

Electronics

PB 95069

Ingard, Uno

Radiation of sound into a circular tube with an application to resonators. Reports from the Research laboratory of electronics, no. 4. Transactions of Chalmers university of technology, no. 70, Gothenburg, Sweden. 1948. 50p photos, diagrs, graphs Mi $2.50 Ph $6.25

I. Resonators—Sweden 2. Sound—Dispersion—Sweden

PB 94578

Millman, Peter M. and McKinley, D. W. R.

Note on four complex meteor radar echoes. Jun 1948. 12p photos, graph, tables Mi $1.75 Ph $2.50

The radar echoes of four meteors, one Geminid and three Lyrids, are studies in detail. All four echoes have an enduring portion of complex character, centered at a height of 90 km., and at least three have an instantaneous component which seems to move with the velocity of the meteor itself. Measurements made on these echoes indicate velocities of 35 km./sec. for the Geminid shower and 48 kin./sec. for the Lyrid shower.

PB 95520

Raytheon Manufacturing Co., Waltham, Mass.

Instruction book for navy model SO-1 radar equipment, ships 238. n.d. 210p photos, drawings, graphs, tables Mi $7.50 Ph $26.25

I. Radar equipment—Operation

PB 95072

Rydbeck, Olof E. H.

Propagation of waves in an inhomogeneous medium. I. Reports from the Research laboratory of electronics, no. 7. Transactions of Chalmers university of technology, no. 74, Gothenburg, Swenden. 1948. 35p graphs Mi $2.25 Ph $5.00

I. Wave progagation—Refraction—Sweden

PB 94625

Schwartz, L. S.

Statistical methods in the design and development of electronic systems. Jul 1947. 51p diagrs Mi $2.75 Ph $7.50

Review of some of the fundamentals of the statistical control of quality and the assignment of valid, economic production tolerances; application of the principles to the setting of some operational tolerances for an electronic system (tolerances necessary to insure frequency stability).

PB 95070

Stranz, Dietrich

Study of impressive wave formation in the atmosphere. Report from the Research laboratory of electronics, no. 5. Transactions of Chalmers university of technology no. 71, Gothenburg, Sweden. 1948. 6p photos, graphs, tables Mi $1.25 Ph $1.25

I. Wave form analysis—Sweden

PB 91949

U. S. Air Force.

Radio, radar and electronics spare parts list: Beacon transmitter receiver AN/PPN-1 and AN/PPN-1A. Mar 1948. 10p tables Mi $1.25 Ph $1.25

I. Receivers—Maintenance and repair

PB 94961

U. S. Camp Evans Signal Laboratory.

Absolutmessung von senderleistungen mit hilfe von strahlungsdruckmessungen. (Absolute measurements of transmitter output by means of radiation pressure measurements). n.d. 3p Mi $1.25 Ph $1.25

I. Transmitters—Output—Germany

Generators, Motors, Transmission, Distribution, and Allied Equipment

PB 93530

Diebold, Vincent B.

Development of liquid oxygen transfer hoses for use with the type A-1 generator. Jun 1948. 10p drawings, tables Mi $1.25 Ph $1.25

I. Hose, Liquid oxygen

PB 90886

Miebach, Hugo, Dortmund, Ger.

Ring core transformer. 1942-1945. 41f Mi $2.50 Enl Pr $7.50

See PB 90886s for abstracts. 2p. Mi $1.25 Ph $1.25

I. Transformers, Ring core—Germany 2. Micro BIOS FD 1756/46, Frames 1-25

PB 90947

Rheinmetall-Borsig A. G., Berlin

Capacity and conductivity of condensers of 1000 HZ in dependence of temperature. 1943. 38f (Text in German) Mi $2.25 Enl Pr $6.25

See PB 90947s for abstracts. 2p. Mi $1.25 Ph $1.25

I. Capacitors—Germany 2. Micro BIOS FD 1808/46, Frames 2-37

Miscellaneous

PB 94627

Birks, L. S. and Friedman, H.

A high temperature X-ray diffraction apparatus, Apr 1947. 11p photos, drawings, graphs Mi $1.25 Ph $2.50

An apparatus is described for heating an X-ray specimen to 1200° C in vacuo while its diffraction pattern is being recorded continously on a Geiger counter spectrometer. The heater consists of a length of 0.030-inch tungsten wire embedded in beryllium oxide, the whole enclosed in a polished tantalum case. Either a flat metal sheet, or powder packed in platinum gauze mounted on sheet metal is suitable as a specimen. An area about one centimeter square in the center of the specimen is irradiated by the X-ray beam in the focusing type of spectrometer. The temperature is uniform over this area to ±5 degrees centigrade. Two concentric radiation shields reduce heat loss. The outer shield also acts as the vacuum-tight body of the oven and has beryllium windows to pass the X-rays. Results indicate that rapid structure changes may be observed with this apparatus as they occur.

PB 90902

Focke-Wulf Flugzeugbau G.m.b.H., Bremer, Ger.

Standard electrodes for spot welding plant. 1943. 29f (Text in German) Mi $2.00 Enl Pr $5.00

See PB 90902s for abstracts. 1p. Mi $1.25 Ph $1.25

I. Welding, Spot—Equipment—Germany 2. Micro BIOS FD 1767/47, Frames 1-19

PB 95212

Germany. Luftfahrtforschung, Heidelberg, Ger.

Electric contact materials, 1940-1941. 162f (Text in German) Mi $6.25 Enl Pr $22.50

See PB 95212s for abstracts. 2p. Mi $1.25 Ph $1.25

I. Contacts, Electric—Germany 2. Physikalisch-Technische Reichsanstalt, Berlin 3. Micro BIOS FD 402/47, Frames 1-32, 1-42, 1-28, 1-56

PB 91421

Germany. Reichsluftfahrtministerium.

X-ray tests of welding seams and joints on mines. 1940-1942. 224f (Text in German) Mi $8.00 Enl Pr $30.00

See PB 91421s for abstracts. 2p. Mi $1.25 Ph $1.25

I. Welding—Seams—Tests—Germany 2. Micro BIOS FD 5727/45, Frames 1-223

PB 90732

Germany. Reichsluftfahrtministerium. Technisches Amt.

Welding practice. n.d. 115f (Text in German) Mi $4.75 Enl Pr $16.25

See PB 90732s for abstracts. 1p. Mi $1.25 Ph $1.25

I. Welding—Germany 2. Micro BIOS FD 1642/47, Frames 1-115

PB 90949

Kunert, Werner, Projektoren- u. Kamerawerk, Alfeld, Ger.

Photocells with highly sensitive composite cathode layers. 1946. 5f (Text in German) Mi $1.25 Enl Pr $2.50

See PB 90949s for abstracts. 1p. Mi $1.25 Ph $1.25

I. Photoelectric cells—Germany 2. Cathodes, Photoelectric—Germany 3. Micro BIOS FD 1812/46, Frames 1-4

PB 90948

Kunert, Werner, Projektoren- u. Kamerawerk, Alfeld, Ger.

Surface and depth effects on composite photo cathodes. 1946. 13f (Text in German) Mi $1.75 Enl Pr $3.75

See PB 90948s for abstracts. 2p. Mi $1.25 Ph $1.25

1. Cathodes, Photoelectric—Germany 2. Micro BIOS FD 1809/46, Frames 20-30

PB 90723

Siemens-Reiniger-Werke A. G., Berlin
X-ray screen for stray radiations. 1935. 12f (Text in German) Mi $1.75 Enl Pr $3.75
See PB 90723s for abstracts. 1p. Mi $1.25 Ph $1.25
1. Radiation—Germany 2. Micro BIOS FD 1635/47, Frames 1-11

PB 94626

Summers, S. D.
Electric cable research investigation of transmission characteristics of three-conductor power cable in use by the U. S. Navy. May 1947. 21p diagrs, graphs, tables Mi $2.00 Ph $3.75
Measurements were made on three-conductor power cable for shipboard use to determine the effect of increased operating frequency (60-800 cps) on the operating characteristics of the cable, and to determine the extent of interference voltage induced in adjacent communication or control circuits by load currents in the power cable. Results of the investigation indicate the extent of reduction in current capacity and the increase in line voltage regulation as the frequency is increased. No interference voltage was observed in adjacent circuits under any condition of load in the power circuit.

PB 95032

U. S. Air Force.
Fairchild: Rework of top-mounted antennas-C-82A. Apr 1948. 13p photos, drawings Mi $1.75 Ph $2.50
1. Antennas—Reworking

PB 93769

U. S. Naval Ordnance Laboratory
Papers presented at the Magnetic Materials Symposium June 15, 1948. Aug 1948 61p drawings, graphs, tables Mi $3.00 Ph $8.75
1. Magnetic materials 2. Rectifiers, Magnetic 3. Amplifiers, Magnetic

FOOD AND KINDRED PRODUCTS

PB 90904

Bock, Hans
Theorie und praxis der pektingewinnung (Theory and practice of pectin production). 1943. 124f (Text in German) Mi $5.00 Enl Pr $17.50
See PB 90904s for abstracts. 32p. Mi $2.50 Ph $6.25
1. Pectin—Manufacture—Germany 2. Micro BIOS FD 1769/46, Frames 1-94

PB 95198

Deutsche Bergin A. G., für Holzhydrolyze, Mannheim, Ger.
A factory for the hydrolysis of wood manufacturing glucose and alimentary yeast. 1945. 5f (Text in German) Mi $1.25 Enl Pr $2.50
See PB 95198s for abstracts. 1p. Mi $1.25 Ph $1.25
1. Wood—Hydrolysis—Germany 2. Glucose—Production—Germany 3. Yeast—Production—Germany 4. Micro BIOS FD 1647/48, Frames 24-27

PB 95167

Institut für Lebensmittelforschung, Munich, Ger.
Food processing. 1945. 23f (Text in German) Mi $2.00 Enl Pr $5.00
See PB 95167s for abstracts. 1p. Mi $1.25 Ph $1.25
1. Food—Manufacture—Germany 2. Micro BIOS FD 3583/47, Frames 1-22 3. BIOS FR 1350, p. 25-45 LD, Frames 1-22

PB 94750

Jarl, Folke and Andersson, Yngve
Ensileringsmetoder, silor och mekaniska hjälpmedel för ensilering. (Methods, silos and labour-saving devices in silage making). 1948. 81p photos, drawings, tables (Text in Swedish) Mi $3.75 Ph $11.25
Summary in English
1. Ensilage—Sweden 2. Jordbrukstekniska Institutet, Ultuna, Uppsala, Sweden, Meddelande. 216

PB 94755

Lundström, Tore
Torkning av skördetröskad spannmal. 1947. 29p photos, drawings, graphs, tables (Text in Swedish) Mi $2.00 Ph $3.75
Summary in English
1. Grain—Handling—Sweden 2. Jordbrukstekniska Institutet, Ultuna, Uppsala, Sweden, Meddelande. 211

PB 95040

U. S. Air Force.
Removal of tray and cup assemblies and use of type B-2 food warmers—bombardment and transport type aircraft. May 1948. 2p Mi $1.25 Ph $1.25
1. Food warmers

FUELS AND LUBRICANTS

PB 94179

Alquist, Henry and Tower, Leonard K.
Knock-limited performance of blends of AN-F-28 fuel containing 2 percent aromatic amines—V. Aug 1945. 14p graphs, tables Mi $1.75 Ph $2.50
Tests were conducted to determine the effect of 2-percent additions of seven aromatic amines on the knock-limited performance of 28-R fuel in a CFR engine. Knock tests were made of seven aromatic amines synthesized, or purchased and purified, at the Cleveland laboratory of the NACA. The amines

tested were N-methyl-p-ethylaniline, N-methyl-o-toluidine, N-methyl-p-isopropylaniline, N-methyl-2, 4-xylidine, methyldiphenylamine, N-methyl-ar-ethylaniline (mixture of N-methyl ethylanilines), and 2, 4,6-trimethylaniline. The knock-limited performance of 28-R fuel with and without 2-percent additions of each of these aromatic amines was determined with a modified F-4 engine at three sets of operating conditions. Ratings were also determined for 28-R and all the fuel blends with an F-3 engine. The results are summarized as follows: 1. The most effective antiknock additives of the aromatic amines tested were N-methyl-ar-ethylaniline, N-methyl-p-ethylaniline, and N-methyl-p-isopropylaniline. 2. Other aromatic amines which are of interest as antiknock additives are N-methyl-2,4-xylidine, N-methyl-o-toluidine, and 2,4,6-trimethylaniline. 3. With certain exceptions the addition of a single methyl radical to the nitrogen atom of an aromatic amine increased the knock-limited power and decreased the temperature sensitivity at most fuel-air ratios and engine conditions.

PB 94123

Alquist, Henry E.

Knock-limited performance of several fuels blended with S-2 reference fuel. Nov 1944. 8p graphs, table Mi $1.25 Ph $1.25

1. Fuels, Aviation—Knocking

PB 95117

Ammoniawerk Merseburg G.m.b.H., Leuna, Ger.

Standardization of lubricating oils. 1942. 22f (Text in German) Mi $2.00 Enl Pr $5.00

See PB 95117s for abstracts. 1p. Mi $1.25 Ph $1.25

1. Lubricating oils—Standardization—Germany 2. Micro BIOS FD 4061/47, Frames 1-21

PB 90957

Braunschweigische Kohlen-Bergwerke, Helmstedt, Ger.

The brown coal industry. 1940. 3f (Text in German) Mi $1.25 Enl Pr $2.50

See PB 90957s for abstracts. 1p. Mi $1.25 Ph $1.25

1. Lignite—Germany 2. Micro BIOS FD 1833A/46, Frames 1-2

PB 93023

Buna-Werke G.m.b.H., Schkopau, Ger.

Production of butylbenzols, particularly Kybol and Butylkybol and tests for knock-ratings. 1942-1944. 40f (Text in German and English) Mi $2.25 Enl Pr $6.25

See PB 93023 for abstracts. 2p. Mi $1.25 Ph $1.25

1. Benzene, Butyl—Germany 2. Kybol (Code name) 3. Micro BIOS FD 2172/47, Frames 1-39

—62073

PB 94168

Cook, Harvey A. and Olson, Walter T.

Small-orifice tubes for minimizing dilution in exhaust-gas samples. Feb 1943. 21p photos, drawings, graphs, table Mi $2.00 Ph $3.75

An investigation was undertaken to find a means of obtaining undiluted exhaust-gas samples from a Wright R-2600-8 aircraft engine equipped with short individual stacks (approximately 10 in. long). Preliminary tests to aid in determining the best design, location, and orientation of orifices ranging from a 0.002-inch slot to an 0.1875-inch-diameter circular opening at the entrance to an exhaust sampling tube were made with a small Briggs & Stratton engine. Sampling tubes 1/4 inch in diameter and with a 0.010-inch-slot orifice were installed in all 14 cykinders of thw Wright engine after the correct location and orientation for the sampling tubes had been determined in tests on a single cylinder of this engine. Samples were alalyzed by an Orsat portable apparatus and by an NACA mixture indicator. The results indicated that (1) small round or slot-type orifices at the entrance to the sampling tube when located and oriented to receive directly the impact pressure of the exhaust gases minimize dilution in the exhaust-gas samples; (2) dilution, if present at the point of sampling in the exhaust stack, can be detected by successively operating the sampling tube at different pressures; (3) samples taken from the Wright engine with the sampling orifice not receiving the full exhaust impact pressure were diluted approximately 50 percent with air; whereas, in samples taken with the sampling orifice correctly oriented, dilution was negligible or nonexistent.

PB 95165

Dresden. Technische Hochschule. Institut für Kraftfahrwesen.

Evaluation of fuels with regard to the occurrence of vapour locks. Report II. 1944. 28f (Text in German) Mi $2.00 Enl Pr $5.00

See PB 95165s for abstracts. 2p. Mi $1.25 Ph $1.25

1. Vapor lock—Germany 2. Fuels—Germany 3. Micro BIOS FD 2877/46, Item 56, Frames 151-176

PB 94193

Goodman, Irving A. and Howard, J. Nelson

Suitability of 18 aromatic amines for overwater storage when blended with aviation gasoline. Jun 1945. 7p tables Mi $1.25 Ph $1.25

1. Fuels, Aviation—Storage

PB 92644

Gt. Brit. Ministry of Fuel and Power.

25th Annual Report of the safety in mines research board, 1946. 1947. 63p photos, graphs,

tables Available from British Information Services, 30 Rockefeller Plaza, New York 20, New York $.45
1. Mines and Mining—Safety measures—Gt. Brit.

PB 91409

I. G. Farbenindustrie A. G.
Production of liquid fuels by means of catalysts. 1940-1944. 96f (Text in German) Mi $4.25 Enl Pr $13.75
See PB 91409s for abstracts. 1p. Mi $1.25 Ph $1.25
1. Fuels—Catalysts—Germany 2. Fuels, Liquid—Production—Germany 3. Micro BIOS FD 5277/45, Frames 1-91

PB 94001

I. G. Farbenindustrie A. G., Ludwigshafen, Ger.
Bericht über versuche mit R-stoffen. (Report concerning an experiment with R-stoff). Nov 1940. 25p graphs, tables (Text in German) Mi $2.00 Ph $3.75
1. Hydrogen peroxide—Germany

PB 95174

I. G. Farbenindustrie A. G., Ludwigshafen, Ger.
Notes and correspondence on starting coal for Diesel engines at low temperatures. 1942-1943. 34f (Text in German) Mi $2.25 Enl Pr $6.25
See PB 95174s for abstracts. 2p. Mi $1.25 Ph $1.25
1. Engines, Diesel—Starting—Germany 2. Fuels, Starting—Germany 3. Micro BIOS FD 4028/47, Frames 1-33

PB 95186

I. G. Farbenindustrie A. G., Ludwigshafen, Ger.
Vacuum distillation of lubricants. 1931-1944. 23f (Text in German) Mi $2.00 Enl Pr $5.00
See PB 95186s for abstracts. 2p. Mi $1.25 Ph $1.25
1. Lubricants—Distillation—Germany 2. Micro BIOS FD 4026/47, Frames 1-21

PB 95176

I. G. Farbenindustrie A. G., Oppau, Ger.
Mono-benzyl aniline as anti-knock agent. 1925. 4f (Text in German) Mi $1.25 Enl Pr $2.50
See PB 95176s for abstracts. 1p. Mi $1.25 Ph $1.25
1. Aniline, Mono-benzyl—Germany 2. Micro BIOS FD 2867/46, Item 96, Frames 1-3

PB 95085

I. G. Farbenindustrie A. G., Oppau, Ger.
Operation of carburetter engines by injection of liquid butane into the induction manifold. 1936. 10f (Text in German) Mi $1.25 Enl Pr $2.50
See PB 95085s for abstracts. 2p. Mi $1.25 Ph $1.25
1. Butane—Germany 2. Fuels, Liquid—Germany 3. Fuels, Automotive—Germany 4. Micro BIOS FD 2869/46, Frames 1-8

PB 95172

I. G. Farbenindustrie A. G., Oppau, Ger.
Tests with diesel oils from Leuna and from the high pressure tests. 1933. 8f (Text in German) Mi $1.25 Enl Pr $2.50
See PB 95172s for abstracts. 2p. Mi $1.25 Ph $1.25
1. Fuels, Diesel—Tests 2. Micro BIOS FD 2870/46, Items 15 and 16, Frames 1-7

PB 93053

I. G. Farbenindustrie A. G., Schkopau, Ger.
Acetylene and ethylene hydrogenation. 1937-1944. 51f (Text in German) Mi $2.75 Enl Pr $8.75
See PB 93053s for abstracts. 2p. Mi $1.25 Ph $1.25
1. Acetylene—Hydrogenation—Germany 2. Ethylene—Hydrogenation—Germany 3. Micro BIOS FD 2148/47, Frames 1-50

PB 95114

I. G. Farbenindustrie A. G., Schkopau, Ger.
Acetylene plant: Monthly reports, 1942-1944. 88f (Text in German) Mi $3.75 Enl Pr $12.50
See PB 95114s for abstracts. 1p. Mi $1.25 Ph $1.25
1. Acetylene—Production—Germany 2. Micro BIOS FD 2047/47, Frames 1-87

PB 93056

I. G. Farbenindustrie A. G., Schkopau, Ger.
Ethylene hydrogenation plant: Monthly statistical figures for 1944. 1944. 18f (Text in German) Mi $1.75 Enl Pr $3.75
See PB 93056s for abstracts. 1p. Mi $1.25 Ph $1.25
1. Ethylene—Hydrogenation—Germany 2. Micro BIOS FD 2147/47, Frames 1-17

PB 93088

I. G. Farbenindustrie A. G., Schkopau, Ger.
Ethylene production by acetyle hydrogenation. 1939-1944. 143f (Text in German) Mi $5.75 Enl Pr $20.00
See PB 93088s for abstracts. 1p. Mi $1.25 Ph $1.25
1. Ethylene—Production—Germany 2. Acetylene—Hydrogenation—Germany 3. Micro BIOS FD 2154/47, Frames 1-142

PB 93068

I. G. Farbenindustrie A. G., Schkopau, Ger.
Ethylene production by acetylene hydrogenation. 1940-1942. 27f (Text in German) Mi $2.00 Enl Pr $5.00
See PB 93068s for abstracts. 1p. Mi $1.25 Ph $1.25
1. Ethylene—Production—Germany 2. Acetylene—Hydrogenation—Germany 3. Micro BIOS FD 2150/47, Frames 1-26

PB 93089

I. G. Farbenindustrie A. G., Schkopau, Ger.
Ethylene production by acetylene hydrogenation. 1941-1944. 178f (Text in German) Mi $6.50 Enl Pr $23.75
See PB 93089s for abstracts. 1p. Mi $1.25 Ph $1.25
I. Ethylene—Production—Germany 2. Acetylene—Hydrogenation—Germany 3. Micro BIOS FD 2152/47, Frames 1-54, 64-186

PB 93066

I. G. Farbenindustrie A. G., Schkopau, Ger.
Ethylene production by acetylene hydrogenation: storage tanks. 1942. 3f (Text in German) Mi $1.25 Enl Pr $2.50
See PB 93066s for abstract. 1p. Mi $1.25 Ph $1.25
I. Ethylene—Production—Germany 2. Acetylene—Hydrogenation—Germany 3. Micro BIOS FD 2156/47, Frames 1-2

PB 93070

I. G. Farbenindustrie A. G., Schkopau, Ger.
Ethylene production by acetylene hydrogenation: Utilization of by-products. 1942-1943. 46f (Text in German) Mi $2.50 Enl Pr $7.50
See PB 93070s for abstracts. 1p. Mi $1.25 Ph $1.25
I. Ethylene—Production—Germany 2. Acetylene—Hydrogenation—Germany 3. Micro BIOS FD 2155/47, Frames 1-45

PB 93071

I. G. Farbenindustrie A. G., Schkopau, Ger.
Production of ethylene through hydrogenation of acetylene. 1941. 25f (Text in German) Mi $2.00 Enl Pr $5.00
See PB 93071s for abstracts. 1p. Mi $1.25 Ph $1.25
I. Ethylene—Production—Germany 2. Acetylene—Hydrogenation—Germany 3. Micro BIOS FD 2149/47, Frames 1-24

PB 94230

Kantrowitz, Arthur and Huber, Paul W.
Heat-capacity lag in turbine-working fluids. May 1944. 17p graphs, table Mi $1.75 Ph $2.50
Gases require a finite time—the relaxation time—to adjust the vibrational part of their internal energy to a change in temperature. If changes in temperature occur in gas flow in times of the order of or shorter than the relaxation time, entropy increases occur. In order to evaluate partially the importance of these heat-capacity lags in turbines, the relaxation times of steam and nitrogen have been studied by the total-head-defect method. The relaxation time of steam was found to be of the order of 3×10^{-8} second. It would be expected from this result that the vibrational heat capacity of steam would adjust to most of the temperature changes in engineering practice rapidly enough that little dissipation would be anticipated. Water vapor is known to be an efficient catalyst for combustion processes and the rapid adjustment of vibrational heat capacity may be important in its catalytic actions. Adjustment of the vibrational heat content of nitrogen to a change in temperature was found to be a slow process and principally dependent on the action of impurities. Measurements were made of mixtures of steam with nitrogen and it was found that about 1 collision in 30,000 between steam and nitrogen molecules is effective in adjusting the vibrational heat content of nitrogen. Nitrogen at 1100° F absolute with 3 percent water vapor thus would have a relaxation time of 1.5×10^{-4} second at atmospheric pressure so that heat-capacity lag in nitrogen should be considered in the design of gas turbines.

PB 94191

Kelly, Richard L.
Low-temperature solubility of 24 aromatic amines in aviation gasoline. Nov 1944. 11p drawings, graphs, tables Mi $1.75 Ph $2.50
I. Fuels, Aviation—Additives

PB 94194

Kelly, Richard L.
Low-temperature solubility of 42 aromatic amines in aviation gasoline. Nov 1945. 13p drawings, graphs, tables Mi $1.75 Ph $2.50
I. Fuels, Aviation—Additives

PB 94209

Kinney, George R. and Niemi, Richard O.
Effect of ethylene dibromide on the knock-limited performance of leaded and nonleaded S reference fuel. Feb 1946. 11p graphs, table Mi $1.75 Ph $2.50
I. Fuels, Aviation—Knocking

PB 90925

Krupp, Friedrich A. G., Essen, Ger.
Half-yearly summaries of research activities relating to coal mining and processing. 1942-1944. 146f (Text in German) Mi $5.75 Enl Pr $20.00
See PB 90925s for abstracts. 2p. Mi $1.25 Ph $1.25
I. Coal mines and mining—Research—Germany 2. Micro BIOS FD 1783/47, Frames 1-254

PB 94195

Lee, Dana W. and Krsek, Alois
Investigation of naphthalene as a possible aircraft fuel. Aug 1941. 26p photos, graphs, tables Mi $2.00 Ph $3.75
Solid naphthalene was melted and used as fuel in a modified CFR variable-compression engine at a speed of 2000 rpm. Most of the tests were made at a compression ratio of 8 and inlet-air temperatures of 100°, 200°, and 300° F. A series of constant inlet-air pressures was used and the fuel-air ratio was varied through a range as permitted by the engine. The amount of boost used was limited either

by the capacity of the laboratory blower system or a condition of rough running which is described. A few tests were made at compression ratios of 9, 10, and 11 and an inlet-air temperature of 100° F. In order to determine the possibilities of naphthalene as a fuel, the performance was compared to that of a mixture of S-1, a technical grade of isooctane with an octane rating of almost 100, plus 6.0 ml TEL per gallon. Engine conditions were the same as for the naphthalene tests except the inlet-air pressure was boosted to the point of incipient knock over the fuel-air-ratio range.

PB 92632

Lyle, Oliver

Efficient use of steam. Jul 1947. 916p photo, diagrs, drawings, graphs, tables Available from British information Services, 30 Rockefeller Plaza, New York 20, New York $4.00

1. Steam—Utilization—Gt. Brit.

PB 94207

Male, Donald W.

Effect of six aromatic amines on the preignition. limited performance of 28-R aviation fuel in a CFR engine. May 1945. 4p table Mi $1.25 Ph $1.25

1. Fuels, Aviation—Additives 2. Fuels, Aviation—Knocking 3. Fuels, Aviation—Preignition

PB 94143

Meyer, Carl L.

Knock-limited performance of S reference fuel plus 2 milliliters of triethylthallium per gallon. Nov 1945. 4p graph, tables Mi $1.25 Ph $1.25

1. Fuels, Aviation—Knocking

PB 94163

Moeckel, W. E. and Evvard, J. C.

Determination of gas temperatures from the frequency of knock-enduced gas vibrations in an internal-combustion engine. Jan 1946. 46p photos, drawing, graphs, tables Mi $2.50 Ph $6.25

Measurements were made of the frequency of knock-induced gas vibrations in a CFR cylinder. The variation of this frequency with fuel-air ratio, inlet-air temperature, and spark advance was determined. Comparisons were also made of frequencies obtained using a shrouded and an unshrouded intake valve and of frequencies obtained when the charge was fired only on alternate engine cycles. In obtaining temperatures from the frequency data, the gas-vibration waves were assumed to be propagated at sonic velocity. The composition of the products of combustion and the ratio of specific heats of these products were computed as functions of fuel-air ratio and temperature, and the resulting data were used in calculating temperatures from frequency data. The frequency-derived temperatures were compared with temperatures calculated from p ressure data, with temperatures obtained from thermodynamic charts, with temperatures indicated by a thermal plug placed in a spark-plug hold, and with temperatures obtained by the spectral-line reversal method by other investigators. The results of this inveatigation may be summarized as follows: 1. Temperatures calculated from frequency data were in agreement with temperatures measured by the spectral line-reversal method in previous investigations and were about 700° F lower than temperatures obtained from thermodynamic charts. Temperatures obtained from peak-pressure data were found to be in poor agreement with frequency-derived temperatures. 2. A maximum error of only about 3.5 percent would be introduced in temperatures calculated from frequency data if the variation of the ratio of specific heats with fuel-air ratio and temperature were neglected. 3. A maximum error of about 14 percent would be introduced in frequency-derived temperatures if the variation of molecular weight with fuel-air ratio were neglected. The variation of molecular weight with temperature, however, is less than 2 percent between 2500° and 5000° F.

PB 91488

Rhenania-Ossag A. G., Hamburg, Ger.

ZEA report no. 41, on chromatographic analyses of mineral oils. 1942. 39f (Text in German) Mi $2.25 Enl Pr $6.25

See PB 91488s for abstracts. 2p. Mi $1.25 Ph $1.25

1. Mineral oils—Analysis—Germany 2. Micro BIOS FD 5188/47, Frames 1-39

PB 91487

Rhenania-Ossag A. G., Hamburg, Ger.

ZEA report no. 77/43, on component analysis of natural lubricating oils by selective adsorption. 1943. 46f (Text in German) Mi $2.50 Enl Pr $7.50

See PB 91487s for abstracts. 1p. Mi $1.25 Ph $1.25

1. Lubricants—Analysis—Germany 2. Micro BIOS FD 5187/47, Frames 1-44

PB 94173

Rothrock, Addison M. and Wear, Jerrold D.

Effect of carburetor-mixture-control and supercharger characteristics on fuel knock under simulated sea-level flight conditions. Mar 1943. 31p graphs, table Mi $2.25 Ph $5.00

Knock-limit data were recorded for a current 100-octane-number aviation gasoline in a full-scale single-cylinder test engine. Inlet-air temperatures were the temperatures estimated from a consideration of the temperature increase through an aircraft-engine supercharger. Low-speed and high-speed superchargers were considered in making these estimated. A carburetor-mixture-control curve was assumed from which, in conjunction with the knock-limit data, estimates were made of those conditions under which the engine would knock with a current 100-octane fuel at sea level. The data indicate that the relation of the carburetor-mixture-control

characteristics to the knock characteristics of the fuel is an important factor in determining knock-free operation. The data further indicate that for the estimated conditions knock is more apt to occur at cruising than at take-off power. It will be necessary to provide a manual device for leaning the mixture to fuel-air ratios of 0.060 or less if knock-free operation is to be insured at the other operating fuel-air ratios. A method is outlined for presenting data considering the knocking characteristics of the fuel, the inlet-air temperatures resulting from the compression of the air in the supercharger, and the carburetor-mixture-control characteristics.

PB 94124

Sanders, Howell D. and others.

Experimental studies of the knock-limited blending characteristics of aviation fuels. I. Preliminary tests in an air-cooled cylinder. Oct 1944. 60p drawing, graphs Mi $2.75 Ph $7.50

The relation between blend concentration and knock limit for two-component blends was investigated for pairs of the following fuels: two commercial gasolines—130-grade aviation fuel and 62-octane fuel; four paraffins—aviation alkylate, S-3 reference fuel, M-4 reference fuel, and 62-octane fuel; one olefin—diisobutylene; one naphthene—cyclopentane; and two aromatics—toluene and benzene. Tetraethyl lead and xylidines were added to the components of some of the blends. All tests were conducted with a Pratt & Whitney R-2800 cylinder at an engine speed of 2000 rpm and an inlet-air temperature of 200° F. The blending relationships previously investigated for the small-scale supercharged engines were applied to results from the full-scale aircraft engine cylinder and extended to include blends of benzene, aviation alkylate, and 62-octane fuels. No general conclusions are drawn from the limited number of tests, but the following results were observed: The reciprocal of the knock-limited indicated mean effective pressure of the binary fuel blends was a linear function of blend composition for paraffinic fuels when tested at a fuel-air ratio of 0.10. This result was also true for blends of paraffinic fuels containing benzene, tetraethyl lead, or xylidines for a constant concentration of one or more of these three materials in the blends. Data taken at fuel-air ratios of 0.07 or 0.075 did not correlate well with the derived reciprocal relation except in three cases. Binary blends of diisobutylene, cyclopentane, toluene, or benzene with paraffinic fuels did not follow the reciprocal relation at either rich or lean mixtures. Test data for trinary blends of benzene, alkylate, and 62-octane fuel at a fuel-air ratio of 0.10 agreed well with an extended equation relating the knock limit of fuel blends to the blend composition.

—62073

PB 93742

Schmidt, L. D.

Production of low-ash coke at the Carl Alexander gewerkschaft, Baesweiler, Germany. Jun 1945. 7p tables Mi $1.25 Ph $1.25

I. Coke—Production—Germany

PB 90895

Tannenberger, R. and Seifert, O.

Berechnung der oktanzahl aus dichte und siedeverlauf (Determination of octane numbers from density and boiling point). 1942. 5f (Text in German) Mi $1.25 Enl Pr $2.50

See PB 90895s for abstracts. 1p. Mi $1.25 Ph $1.25

I. Gasoline—Octane number—Germany 2. Micro BIOS FD 1763/47, Frames 1-4

PB 94121

Tower, Leonard K.

Knock-limited performance of blends of AN-F-28 fuel containing 4 percent aliphatic amines. Apr 1945. 6p graphs, table Mi $1.25 Ph $1.25

The present paper reports knock-limited performance data on fuel blends containing 96 percent by volume of AN-F-28, Amendment-2, fuel and 4 percent by volume of each of the following aliphatic amines: diethylamine, triethylamine, butylamine, isobutylamine, diisopropylamine, and sec-butylamine.

PB 93743

Yancey, H. F. and others.

Production of metallurgical coke from weakly coking coals at Saargruben, A. G. May 1945. 17p tables Mi $1.75 Ph $2.50

I. Coke—Production—Germany

HIGHWAYS AND BRIDGES

PB 81506

Gt. Brit. Dept. of Scientific and Industrial Research. Road Research Laboratory. Harmondsworth, Eng.

Recommendations for tar surface dressings. 1947 7p tables Available from British Information Services, 30 Rockefeller Plaza, New York 20, N. Y. $.10

I. Surfacing, Tar—Gt. Brit.

PB 92635

Gt. Brit. Ministry of Transport.

Final report of the Committee on road safety. May 1947. 144p tables (1 fold) Available from British Information Services, 30 Rockefeller Plaza, New York 20, New York. $.90

I. Highways—Safety—Gt. Brit.

PB 94938

Hirai, Atsushi

Aerodynamic stability of suspension bridge: Abstract. Apr 1948. 6p Mi $1.25 Ph $1.25

I. Bridges, Suspension—Japan 2. Tokyo. Imperial University. Faculty of Engineering

PB 94896

Hirai, Atsushi

Stability of torsional oscillation of suspension bridge Part I, II, III, IV: Abstract. 1948. 8p Mi $1.25 Ph $1.25

I. Bridges, Suspension 2. Tokyo. Imperial University. Department of Civil Engineering

INSTRUMENTS

PB 90924

Apparatebau R. Zoon, Berlin.

Tension rectifiers and voltage regulators. n.d. 5f (Text in German) Mi $1.25 Enl Pr $2.50

See PB 90924s for abstracts. 1p. Mi $1.25 Ph $1.25

I. Rectifiers, Tension—Germany 2. Voltage regulators—Germany 3. Micro BIOS FD 1782/47, Frames 1-7

PB 90891

Deutsche Rotawerke G.m.b.H., Aix-la Chapelle, Ger.

"Rotamesser" (Rota gauges) for all gases and liquids. n.d. 9f (Text in German) Mi $1.25 Enl Pr $2.50

See PB 90891s for abstracts. 1p. Mi $1.25 Ph $1.25

I. Liquids—Flow measurements—Germany 2. Liquids—Measurements—Germany 3. Rotameters—Germany 4. Gases—Flow measurements—Germany 5. Gases—Measurements—Germany 6. Micro BIOS FD 1758/47, Frames 1-8

PB 90892

Eckardt, J. C., A. G., Stuttgart, Ger.

Electro-measuring and other measuring instruments. 1938. 14f (Text in German) Mi $1.25 Enl Pr $3.75

See PB 90892s for abstracts. 2p. Mi $1.25 Ph $1.25

I. Instruments, Measuring—Germany 2. Instruments, Measuring—Electrical—Germany 3. Micro BIOS FD 1759/47, Frames 1-21

PB 90734

Elektro-Mechanik Dipl—Ing, Heinrich List, Berlin

Electro-magnetic stroboscope "Oszillosrop". 1938. 5f (Text in German) Mi $1.25 Enl Pr $2.50

See PB 90734s for abstracts. 1p. Mi $1.25 Ph $1.25

I. Stroboscopes—Germany 2. Micro BIOS FD 1644/47, Frames 1-5

PB 90903

Focke-Wulf Flugzeugbau A. G., Bremer, Ger.

Apparatus for the measurement of longitudinal stresses in wires. n.d. 6f (Text in German) Mi $1.25 Enl Pr $2.50

See PB 90903s for abstracts. 1p. Mi $1.25 Ph $1.25

I. Instruments, Measuring—Stresses—Germany 2. Wire—Stresses—Germany 3. Micro BIOS FD 1768/47, Frames 1-5

PB 91420

Germany. Reichsluftfahrtministerium.

Bomb sights-speedometers—altimeters—sight for He 115 low level attack-decrees affecting metal, steel and iron supply. 1940 130f (Text in German) Mi $5.00 Enl Pr $17.50

See PB 91420s for abstracts. 4p. Mi $1.25 Ph $1.25

I. Bombsights—Germany 2. Speedometers—Germany 3. Altimeters—Germany 4. Gun sights, Aircraft—Germany 5. Micro BIOS FD 5721/45, Frames 1-127

PB 90884

Geue, Dipl. Ing.

Ventilsicherungen in kälteanlagen (Safe working of stop valves on refrigerating plant). 1941. 9f (Text in German) Mi $1.25 Enl Pr $2.50

See PB 90884s for abstracts. 1p. Mi $1.25 Ph $1.25

I. Valves, Stop—Germany 2. Refrigeration—Equipment—Germany 3. Micro BIOS FD 1754/47, Frames 135-141

PB 95219

I. G. Farbenindustrie A. G., Schkopau, Ger.

The ultraviolet "Dosimeter". n.d. 26f (Text in German) Mi $2.00 Enl Pr $5.00

See PB 95219s for abstracts. 2p. Mi $1.25 Ph $1.25

I. Dosimeters—Germany 2. Ultraviolet intensity meters—Germany 3. Micro BIOS FD 2386/47, Frames 1-25

PB 90926

Joens, W. H., & Co., Düsseldorf, Ger.

Temperature measuring instruments. 1935-1938. 26f (Text in German) Mi $2.00 Enl Pr $5.00

See PB 90926s for abstracts. 1p. Mi $1.25 Ph $1.25

I. Instruments, Measuring—Temperature—Germany 2. Micro BIOS FD 1784/47, Frames 1-41

PB 92418

Karoly, G.

Adaptation of watchmaster to the testing of stop-watches. Oct 1947. 11p diagrs, graphs Mi $1.75 Ph $2.50

I. Watches, Stop—Tests—Australia

PB 94577

Mathers, G. W. C.

Goniometer test apparatus. Jul 1948. 14p photos, diagrs, graphs, tables Mi $1.75 Ph $2.50

The apparatus which is being used at the National Research Council of Canada for the accurate determination of the angular cyclic error in goniometers is described. The details of the design and construction of the apparatus are outlined and an analysis is given of the possible sources of error and their correction. The maximum error in the test apparatus is shown to be ±0.03 degrees.

PB 94727

Nyberg, Alf

Comparison between the väisälä radiosonde and the friez radiosonde. n.d. 6p tables Mi $1.25 Ph $1.25

1. Instruments, Meteorological—Sweden 2. Sveriges Meteorologiska och Hydrologiska Institut, Stockholm. Meddelanden, ser. B, no. 2

PB 90920

Seybold, E., Nachfolger A. G., Cologne, Ger.

Electrical measuring instruments, laboratory equipment. 1940. 49f (Text in German) Mi $2.75 Enl Pr $8.75

See PB 90920s for abstracts. 1p. Mi $1.25 Ph $1.25

1. Instruments, Measuring—Electrical—Germany 2. Laboratories—Apparatus—Germany 3. Micro BIOS FD 1779/47, Frames 1-54

PB 90738

Siemens & Halske A. G., Berlin

Electrical measuring and recording instruments. 1923-1944. 813f (Text in German) Mi $9.00 Enl Pr $107.50

See PB 90738s for abstracts. 2p. Mi $1.25 Ph $1.25

1. Instruments, Measuring—Electrical—Germany 2. Recorders—Germany 3. Micro BIOS FD 1648/47, Frames 1-1406

PB 93648

Simmons, Carroll F. and Guillemin, Victor, Jr.

Bicycle ergometer, mechanically braked. Jun 1948. 19p photos, table Mi $1.75 Ph $2.50

1. Ergometer

PB 95071

Stranz, Dietrich

Ozonradiosonde. Report from the Research laboratory of electronics, no. 6. Transactions of Chalmers university of technology no. 72, Gothenburg, Sweden. 1948. 48p drawing, graphs, tables (Text in Swedish) Mi $2.50 Ph $6.25

Abstract in English

1. Instruments, Meteorological—Sweden

—62073

PB 94972

Sugimoto, Asao

On the two-directional mass spectrometer. n.d. 14p graphs Mi $1.75 Ph $2.50

1. Mass spectrometers—Japan

PB 94227

Warfield, Calvin N. and Kenimer, Robert L.

Infrared cloud indicator. I. Analysis of infrared-radiation exchange with tables and chart for calibration of the cloud indicator. Nov 1945. 76p drawings, graphs, tables Mi $3.50 Ph $10.00

An experimental model of a flight instrument that utilizes infrared radiations for detecting and indicating the location of clouds at night is briefly described. In order to determine the important parameters that contribute to the net exchange of radiation between the receiver of the cloud indicator and a cloud, a preliminary investigation is made of data in the scientific literature. The important parameters are then used in an analysis of the net exchange of radiation between the receiver of the cloud indicator and a cloud. As a result of the analysis, several tables and a chart have been devised, which make it practical to determine the magnitude of the net exchange of radiation for any particular atmosphere of known composition and distribution of temperature. The analysis and the resulting tables and chart take into consideration both water vapor and carbon dioxide and also the effect of the spectral absorption and emission of the optical system of the cloud indicator. The tables and the chart that resulted from the analysis were devised to provide a basis for extrapolating the results of ground observations to the range anticipated during flight use.

PB 94968

Witten, Benjamin and others.

Kit, chemical agent detector, M9: An investigation of the tests obtained with the detector tubes. 1944. 45p photos, tables Mi $2.50 Ph $6.25

1. Detectors, Chemical warfare agent

PB 90956

Zeiss, Carl

High speed photometer. n.d. 31f (Text in German) Mi $2.25 Enl Pr $6.25

See PB 90956s for abstracts. 2p. Mi $1.25 Ph $1.25

1. Photometers—Germany 2. Micro BIOS FD 1832/46, Frames 1-35

PB 95171

Zentrale für Wissenschaftliches Berichtwesen der Luftfahrtforschung.

Air consumption of direct fuel injection, sparkignition, internal combustion engines as a basis for the design of fuel governors.

1935. 13f (Text in German) Mi $1.75 Enl Pr $3.75
See PB 95171s for abstracts. 1p. Mi $1.25 PB $1.25
I. Governers, Fuel—Germany 2. Micro BIOS FD 4783/47, Frames 1-12

LEATHER AND LEATHER PRODUCTS

PB 91419
Duetsche Versuchsanstalt für Luftfahrt, and Fachschule für Lederindustrie.
Development of leather for protection of fuel tanks in aircraft. A substitute material for leather. 1933-1941. 564f (Text in German) Mi $9.00 Enl Pr $75.00
See PB 91419s for abstracts. 2p. Mi $1.25 Ph $1.25
I. Leather—Substitutes—Germany 2. Tanks, Fuel—Aircraft—Germany 3. Micro BIOS FD 5719/45, Frames 1-551

PB 93741
U. S. Technical Industrial Intelligence Committee. Chemicals Subcommittee.
Products for the leather industry from ethylene-chloride and xylol and through the sulfurization of xylol. Translation report. Oct 1945. 5p Mi $1.25 Ph $1.25
I. Ethylene chloride 2. Xylene—Uses 3. Leather industries 4. I. G. Farbenindustrie A. G., Frankfurt am Main, Ger.

LUMBER AND WOOD PRODUCTS

PB 94798
Adler, Erich
Lignin som rämaterial för konsthartser. 1946. 5p photos (Text in Swedish) Mi $1.25 Ph $1.25
I. Lignin—Uses—Sweden 2. Svenska Träforskningsinstitutet. Träkemi och Pappersteknik. Meddelande 10

PB 90943
Boettcher & Gessner, Hamburg, Ger.
Wood-working machinery. 1940. 51f (Text in German and English) Mi $2.75 Enl Pr $8.75
See PB 90943s for abstracts. 3p. Mi $1.25 Ph $1.25
I. Woodworking machines—Germany 2. Micro BIOS FD 1798-46, Frames 1-65

PB 90905
Focke-Nulf Flugzeugbau G.m.b.H., Bremer, Ger.
Tests on plywoods for aircraft construction. 1934-1944. 87f (Text in German) Mi $3.50 Enl Pr $11.25
See PB 90905s for abstracts. 1p. Mi $1.25 Ph $1.25
I. Plywood—Uses—Germany 2. Airplanes—Materials—Plywood—Germany 3. Micro BIOS FD 1769/47, Frames 1-90

PB 94803
Hägglund, Erik
Kort översikt över verksamheten vid Svenska Träforskningsinstitutets Träkemiska och cellulosatekniska avdelningar under 1946. 1947. 9p graphs, tables (Text in Swedish) Mi $1.25 Ph $1.25
I. Cellulose, Wood-Sweden 2. Svenska Träforskningsinstitutet. Träkemi och Pappersteknik. Meddelande 15

PB 91485
I. G. Farbenindustrie A. G., Schkopau, Ger.
Floor boards made of wood shavings and synthetic rubber residues, and of sawdust and magnesia cement. 1943-1944. 14f (Text in German) Mi $1.75 Enl Pr $3.75
See PB 91485s for abstracts. 1p. Mi $1.25 Ph $1.25
I. Wood waste board—Manufacture—Germany 2. Micro BIOS FD 2429/47, Frames 1-13

PB 94944
Japan. Naval Air Technical Institute.
Buckling of columns made of glued strengthened wood: Abstract. Oct 1944. 2p graph Mi $1.25 Ph $1.25
I. Panels, Wooden—Buckling—Japan

PB 94943
Japan. Naval Air Technical Institute.
Compressive strength of veneer plates: Abstract. Oct 1944. 3p graph Mi $1.25 Ph $1.25
I. Panels, Veneer—Japan

PB 94809
Lange, Paul W.
Some views on the lignin in the woody fiber during the sulfite cook. 1947. 5p photos, diagrs, graphs Mi $1.25 Ph $1.25
Abstracts in Swedish and German
I. Lignin—Sweden 2. Svenska Träforskningsinstitutet. Träkemi och Pappersteknik. Meddelande 21

PB 94815
Pehrson, Stig
Bacterium occurring in wet mechanical pulp, producing a heat-stable, highly fungicidal substance. Preliminary report. 1947. 11p photos Mi $1.75 Ph $2.50
I. Bacteria—Culture media—Sweden 2. Wood pulp—Sweden 3. Fungicides—Preparation—Sweden 4. Svenska Träforskningsinstitutet. Träkemi och Pappersteknik. Meddelande 27

PB 94529
Rinker, R. C. and others.
Effect of pH on strength of resin bonds. Oct 1943. 22p graphs, tables Mi $2.00 Ph $3.75
I. Plywood—Bonding 2. Resins—Properties 3. Hydrogen ion concentration

PB 94808

Steenberg, Börje

Beating process studied by fiber swelling. 1947. 9p photos, diagrs, graphs, tables Mi $1.25 Ph $1.25

1. Fibers—Swelling—Sweden 2. Svenska. Träforskningsinstitutet. Träkemi och Pappersteknik. Meddelande 20

PB 90945

Vereinigte Furnier & Sperrholz Maschinen-Fabriken, Berlin.

Machines for the production of veqeers and plywoods. 1939. 29f (Text in German) Mi $2.00 Enl Pr $5.00

See PB 90945s for abstracts. 2p. Mi $1.25 Ph $1.25

1. Veneers—Manufacture—Germany 2. Plywood—Manufacture—Germany 3. Micro BIOS FD 1803/46, Frames 1-23

PB 95180

Wenzl, H.

Wood as raw and working material for European reconstruction. 1946. 30f Mi $2.00 Enl Pr $5.00

See PB 95180s for abstracts. 1p. Mi $1.25 Ph $1.25

1. Wood—Conservation—Germany 2. Wood—Uses—Germany 3. Micro BIOS FD 4087/47, Frames 1-31

PB 90952

Westfälisch-Anhaltische Sprengstoff A. G., Berlin

Cellulose from beechwood. 1935-1936. 14f (Text in German) Mi $1.75 Enl Pr $3.75

See PB 90952s for abstracts. 1p. Mi $1.25 Ph $1.25

1. Cellulose—Manufacture—Germany 2. Beech—Germany 3. Micro BIOS FD 1818/46, Frames 3188-3200

MACHINERY, EQUIPMENT AND SUPPLIES

PB 90933

Brown, Beveri & Co., A. G., Mannheim, Ger.

The gas turbine in blast furnaces. 1941. 14f (Text in German) Mi $1.75 Enl Pr $3.75

See PB 90933s for abstracts. 2p. Mi $1.25 Ph $1.25

1. Furnaces, Blast—Germany 2. Turbines, Gas—Germany 3. Micro BIOS FD 1788/46, Frames 1-11

PB 81592

Bull, J. W. and Cranwell, H.

Explosion from no. 5 water tube boiler at Blackburn Meadows no. 2 generating station, Sheffield. Boiler Explosions Acts, 1882 and 1890, report of preliminary inquiry no. 3322. 1947. 5p photos Available from British Information Services, 30 Rockefeller Plaza, New York 20, N. Y. $.15

1. Boilers—Explosion

—62073

PB 90890

Deutsche Amerikanische Petroleum Gesellschaft, Hamburg, Ger.

Scientific principles of lubrication in high speed i. C. engines. Isopropylether as a new super anti-knock aviation fuel. 1937. 60f (Text in German) Mi $2.75 Enl Pr $8.75

See PB 90890s for abstracts. 3p. Mi $1.25 Ph $1.25

1. Engines, Internal combustion—Lubrication—Germany 2. Fuels, Aviation—Germany 3. Micro BIOS FD 1757/47, Frames 3-80

PB 90910

Deutsche Gold- und Silberscheideanstalt, Frankfurt am Main, Ger.

Surface grinding machine. 1942. 26f (Text in German) Mi $2.00 Enl Pr $5.00

See PB 90910s for abstracts. 1p. Mi $1.25 Ph $1.25

1. Machines, Grinding—Germany 2. Micro BIOS FD 1773/47, Frames 1-22

PB 95111

Dicktermann, Gebruder, A. G., Dielefeld, Ger.

Drawings of 10 ton and 20 ton lifting jack. 1943-1946. 58f (Text in German) Mi $2.75 Enl Pr $8.75

See PB 95111s for abstracts. 1p. Mi $1.25 Ph $1.25

1. Jacks—Germany 2. Micro BIOS FD 930/48, Frames 1-57

PB 93872

Donalson, Douglas C.

Comparative test of jacks, tracklaying, salvage, and dolly set (8-29 airplane removal). Jun 1948. 29p photos Mi $2.00 Ph $3.75

1. Dollies—Tests 2. Jacks, Tracklaying—Tests

PB 90907

Focke-Wulf Flugzeugbau G.m.b.H., Bremer, Ger.

Strength of explosive rivets. 1940-1945. 18f (Text in German) Mi $1.75 Enl Pr $3.75

See PB 90907s for abstracts. 1p. Mi $1.25 Ph $1.25

1. Rivers, Explosive—Tests—Germany 2. Micro BIOS FD 1770/47, Frames 1-17

PB 92654

Gt. Brit. Ministry of Supply.

National advisory council for the motor manufacturing industry report on proceedings. Oct 1947. 26p tables Available from British Information Services, 30 Rockefeller Plaza, New York 20, New York $.20

1. Motor Industry—Gt. Brit.

PB 95168

I. G., Farbenindustrie A. G., Opau, Ger.

The "Egersdorfer" heavy oil equipment. n.d. 6f (Text in German) Mi $1.25 Enl Pr $2.50

See PB 95168s for abstracts. Ip. Mi $1.25 Ph $1.25
I. Pumps, Fuel—Germany 2. Nozzles, Fuel—Germany 3. Micro BIOS FD 2871/46, Item 98, Frames 26687-26691

PB 94009

Johnson Motors, Waukegan, Illinois.
Instruction book and parts list for model KSL-16. Jul 1946. 32p diagrs, photos, tables Mi $2.25 Ph $5.00
I. Motors—Maintenance and repair

PB 91417

Junkers Flugzeug und Motorenwerke A. G., Schoenebeck, Ger.
Milling machines. 1939-1945. 193f (Text in German) Mi $7.00 Enl Pr $26.25
See PB 91417s for abstracts. 2p. Mi $1.25 Ph $1.25
I. Machines, Milling—Germany 2. Micro BIOS FD 5579/45, Frames 1-206

PB 90893

Koerting Maschinen & Apparatebau A. G., Hanover, Ger.
Trade pamphlets of pumps, vacuum cooling plants, air conditioning installations, etc. 1937. 20f (Text in German) Mi $1.75 Enl Pr $3.75
See PB 90893s for abstracts. Ip. Mi $1.25 Ph $1.25
I. Air conditioning—Equipment—Germany 2. Pumps—Germany 3. Cooling—Germany 4. Micro BIOS FD 1761/47, Frames 1-27

PB 95090

Kötter, Otto, G.n.b.H., Wuppertal, Ger.
Precision chain drives. 1934. 233f (Text in German) Mi $8.25 Enl Pr $31.25
See PB 95090s for arstracts. Ip. Mi $1.25 Ph $1.25
I. Sprockets—Germany 2. Chains—Germany 3. Chain conveyors—Germany 4. Micro BIOS FD 1911/46, Frames 1-232 5. BIOS FR 640 LD, Frames 1-232

PB 90939

Krupp, Friedrich A. G., Essen, Ger.
Bending press and sheet rolling mills. 1938-1940. 101f (Text in German) Mi $4.50 Enl Pr $15.00
See PB 90939s for abstracts. Ip. Mi $1.25 Ph $1.25
I. Machines, Bending—Germany 2. Rolling mills—Equipment—Germany 3. Micro BIOS FD 1794/47, Frames 1-74

PB 90940

Krupp, Friedrich A. G., Essen, Ger.
Research work within the combine, comprising steel, heavy processing machinery, marine engine construction, coal and coke, guns. 1942. 41f (Text in German) Mi $2.50 Enl Pr $7.50
See PB 90940s for abstracts. Ip. Mi $1.25 Ph $1.25
I. Steel—Research—Germany 2. Iron and steel industry—Equipment—Research—Germany 3. Engines, Marine—Research—Germany 4. Coal—Research—Germany 5. Coke—Research—Germany 6. Guns—Research—Germany 7. Micro BIOS FD 1795/47, Frames 1-40

PB 90944

Krupp, Friedrich, Grusonwerk A. G., Magdeburg, Ger.
Operating instructions for roller crushing mill. n.d. 8f (Text in German) Mi $1.25 Enl Pr $2.50
See PB 90944s for abstracts. Ip. Mi $1.25 Ph $1.25
I. Crushing mills—Germany 2. Machines, Crushing—Germany 3. Micro BIOS FD 1798/47, Frames 1-7

PB 93725

Kühnle Kopp & Kausch A. G., Frankenthal, Ger.
Vogelbusch evaporators. (Advertising pamphlet). Nov 1937. 4p photos (Text in German) Mi $1.25 Ph $1.25
I. Evaporators—Germany 2. FIAT MCF 601

PB 90737

Loewe Werkzeugmaschinen A. G., Berlin.
Profile grinding machine SN with pantograph and microscope viewer. 1943. 58f (Text in German) Mi $2.75 Enl Pr $8.75
See PB 90737s for abstracts. Ip. Mi $1.25 Ph $1.25
I. Machines, Grinding—Germany 2. Micro BIOS FD 1647/47, Frames 1-58

PB 94537

McKee, S. A. and others.
Performance characteristics of journal bearings with forced-feed lubrication. Aug 1944. 33p photos, graphs Mi $2.25 Ph $5.00
Friction and heat-dissipation data are presented for use in determining the load-carrying capacity of 2- by 1 1/4-inch bearings with the following types of lining: copper-lead, lead-indium-coated silver, and lead-coated copper-lead. The tests were made in a four-bearing friction machine and covered operation with three clearances using three oils of different viscosity at three oil-inlet temperatures. Values are computed to indicate the safe loads at various speeds for bearings lined with each of the three types of material. The data are presented in the form of charts convenient for obtaining relative safe-load values that may be used in estimating the effects of viscosity grade, viscosity index, oil-inlet temperature, bearing clearance, and bearing metal on the performance of aircraft-engine bearings in actual service. The results indicate that both lead-indium-coated silver and lead-coated copper-lead bearings have greater load-carrying capacity than copper-lead bearings.

PB 93693

May, H.
Burning and evaporating test with the high-capacity turbo-jet-nozzle grate at the boiler

F.-No. 5352 of the firm "Textiliana" in Litzmannstadt on May 25, 1944. Aug 1944. 10p tables Mi $1.25 Ph $1.25

Grate is suitable for the burning of low quality fuel and fuel containing a high percentage of non-burning solid substances. With a corresponding construction of the surface of the grate, for instance an enlargement in front of the boiler, this kind of coal will give satisfactory steam production on acceptable economic terms. The adaptation of existing grate installations is possible without technical difficulties. FIAT MCF 427

PB 90965

Ortlinghaus, Otto, Söhne, Remscheid, Ger.

Disc clutches, steel rollers for cold rolling mills, machine cutters, etc. n.d. 10f (Text in German) Mi $1.25 Enl Pr $2.50

See PB 90965s for abstracts. 1p. Mi $1.25 Ph $1.25

1. Clutches—Germany 2. Rollers—Germany 3. Rolling mills—Equipment—Germany 4. Cutters—Germany 5. Micro BIOS FD 1845/46, Frames unnumbered

PB 90880

Oswald, Felix, Co., Chemnitz, Ger.

"Winkler" vertical gear wheel pumps. n.d. 6f (Text in German) Mi $1.25 Enl Pr $2.50

See PB 90880s for abstracts. 1p. Mi $1.25 Ph $1.25

1. Pumps—Germany 2. "Winkler" pumps—Germany 3. Micro BIOS FD 1750/47, Frames 1-5

PB 91259

Pfeiffer, Gebr., Barbarossawerke A. G., Kaiserlautern, Ger.,

Pressure filters. 1939. 9f diagrs (Text in German) Mi $1.25 Enl Pr $2.50

See PB 91259s for abstracts. 3p. Mi $1.25 Ph $1.25

1. Filters, Pressure—Germany 2. Micro BIOS FD 2682/46, Frames incorrectly numbered

PB 91187

Rheinmetall-Borsig A. G., Unterlüss, Ger.

Calculations on the efficiency of cardan-joints. 1946. 12f graphs (Text in German) Mi $1.75 Enl Pr $3.75

See PB 91187s for abstracts. 1p. Mi $1.25 Ph $1.25

1. Joints, Cardan—Efficiency—Germany 2. Micro BIOS FD 2431/46, Frames 157-167

PB 92496

Ricardo & Company

Heat flow measurements. Nov 1946. 16p drawings, graphs, tables Available from British Information Services, 30 Rockefeller Plaza, New York 20, New York $1.00

1. Engines—Design—Gt. Brit. 2. Engines—Temperature—Gt. Brit.

—82073

PB 90731

Saupe, Ernst Furma, Limbach, Ger.

Hydraulic internal grinding machine J. S. 1. 1944. 334f (Text in German) Mi $9.00 Enl Pr $45.00

See PB 90731s for abstracts. 2p. Mi $1.25 Ph $1.25

1. Machines, Grinding—Germany 2. Micro BIOS FD 1641/47, Frames 1-286

PB 90878

Simon, Wilhelm & Co., Nuremburg, Ger.

Twenty-seven technical drawings of a folding machine for electric torch casings. 1933-1941. 178f (Text in German) Mi $6.50 Enl Pr $23.75

See PB 90878s for abstracts. 1p. Mi $1.25 Ph $1.25

1. Flashlights—Germany 2. Micro BIOS FD 1749/46, Frames 1-27

PB 95095

Tileman, Theodor, K. G., Gevelsberg, Ger.

Chain drives. n.d. 160f Mi $6.00 Enl Pr $21.25

See PB 95095s for abstracts. 2p. Mi $1.25 Ph $1.25

1. Chain conveyors—Germany 2. Chains—Germany 3. Micro BIOS FD 1909/46, Frames 1-159 4. BIOS FR 640 LD, Frames 1-159

PB 91951

U. S. Air Force.

Handbook, operation and service instructions with parts catalog: USAF type E-5A accessory power plant. Mar 1948. 49p photos, drawings, tables Mi $2.50 Ph $6.25

1. Power plants, Auxiliary—Maintenance and repair 2. AAF TO 19-45A-7

PB 95042

U. S. Bureau of Ships.

Internal combustion engines: Parts and instruction books, American Bosch- fuel inj. equip; The Buda Co-6-DTHR-468; Cooper-Bessemer- fuel inj. systems; Ex-Cell-O- fuel inj. equip.; General Motors-8-268A; General Motors-8-268. n.d. 418f Mi $9.00 Enl Pr $53.75

1. Engines, Internal combustion—Maintenance and repair 2. American Bosch Corp., Springfield, Mass. 3. Buda Company, Harvey, Ill. 4. Cooper-Bessemer Corp., Mt. Vernon, O. 5. Ex-Cell-O Corp., Detroit, Mich. 6. General Motors Corp., Detroit, Mich.

PB 95043

U. S. Bureau of Ships.

Internal combustion engines: Parts and instruction books, Buda-4DTG-212; Cummins—(Fuel injection system); General Motors—(Fuel injection maintenance manual); Hoover, Owens, Rentschler Co., model G8SA—interchangeability; Onan Electric

Plants—Sales manual; Packard Motor Car Co.—IM-3300. 1941-1945. 913f Mi $9.00 Enl Pr $120.000
I. Engines, Internal combustion—Maintenance and repair 2. Packard Motor Car Co., Detroit, Mich. 3. Buda Company, Harvey, Ill. 4. Cummins Engine Co., Columbus, Ind. 5. General Motors Corp., Detroit, Mich. 6. Hoover Co., North Canton, O. 7. Owens, J. L., Corp., St., Paul, Minn. 8. Rentschler & Sons, Inc., Irvington, N. J.

PB 91869

U. S. Bureau of Ships.
Materials for gas turbines operating at 1500° F. test B-3254. Jan 1947. 95p photos, graphs Mi $4.25 Ph $12.50
Four high-temperature alloys were investigated to determine their aging characteristics. Included were a low-carbon Vitallium, a modified high-carbon Vitallium, 6059, and a modified high-carbon N-155 alloy. A slight change was indicated at 1000° F, but the first definite precipitation in all the alloys was in the neighborhood of 1350° F. The maximum amount of aging was at 1550°—1600° F in the two low-carbon alloys, and at 1600°-1700° F in the high-carbon alloys. In all cases agglomeration of the precipitate began at about 1700° F, and by 2200° F practically all of it was back into solution. The rates of the precipitating reactions were also studied. In spite of the indications of a reaction at 1000° F, all of the alloys were entirely stable at that temperature. The temperature of least stability (i.e., greatest reaction rate) was 1350° F. A period of initial stability ranging from 25 minutes to 2 hours was usually present at this temperature. At 1500° and 1650° F this initial innoculation period was absent, and stability was reached sooner than at lower temperatures. Repture tests were used to verify the results indicated by the various other tests. They showed that the longest rupture life at 1500° F is achieved by preaging test bars, generally at 1350° F. This temperature can vary in either direction depending on the particular alloy.

PB 90782

Vereinigte Leichtmetallwerke G.m.b.H., Hanover, Ger.
Rolling methods in cladding. 1941. 21f tables, charts, diagrs (Text in German) Mi $1.75 Enl Pr $3.75
See PB 90782s for abstracts. 1p. Mi $1.25 Ph $1.25
I. Cladding—Germany 2. Micro BIOS FD 1679/47, Frames 1-20

MEDICAL RESEARCH AND PRACTICE

PB 95011

Adelman, A. and Hitchcock, Fred A.
Explosive decompression to 30 mm. Hg. Jun 1948. 76p tables Mi $3.50 Ph $10.00
I. Decompression—Physical effects

PB 89169

Frisch, K. V.
Geschmacksinn bei fischen. (Sense of taste in fishes). n.d. 2p (Text in German) Mi $1.25 Ph $1.25
I. Sense organs—Fishes—Germany

PB 91411

Gaethgens, Habil G.
(a) Experiments in the reduction of infant mortality by the use of vitamin K to prevent bleeding. (b) Current work of the Kerckhoff Institute. (c) Essays, lectures, publications. 1945. 20f (Text in German) Mi $1.75 Enl Pr $3.75
See PB 91411s for abstracts. 1p. Mi $1.25 Ph $1.25
I. Kerckhoff Institute, Bad Neuheim, Ger. 2. Vitamin K—Uses—Germany 3. Infants—Mortality—Germany 4. Micro BIOS FD 5299/45, Frames 1-19

PB 88913

Götzo, R.
Ovarielle störungen der fruchtbarkeit bei der stute. (Ovarian cysts in mares). Feb 1940. 4p photo (Text in German) Mi $1.25 Ph $1.25
I. Horses—Diseases— Germany

PB 88914

Götze, R.
Ovarielle störungen der fruchtbarkeit beim rind. (Ovarian cysts in cattle). Feb 1940. 6p photo (Text in German) Mi $1.25 Ph $1.25
I. Cattle—Diseases—Germany

PB 91414

Hager & Meisinger G.m.b.H., Düsseldorf, Ger.
Automatic feed roller for the dental industry. 1929. 13f (Text in German) Mi $1.75 Enl Pr $3.75
See PB 91414s for abstracts. 1p. Mi $1.25 Ph $1.25
I. Dental instruments and apparatus—Germany 2. Micro BIOS FD 5484/47, Frames 1-12 3. BIOS FR 630 LD, Frames 1-12

PB 88908

Kirchhof, Johannes
Phänomenologie des insulin-schocks. (Phenomenology of insulin shock). Jan 1941. 1p (Text in German) Mi $1.25 Ph $1.25
I. Insulin—Therapeutic use—Germany

PB 95010

Nicoll, Paul A. and Webb, Richard L.
Studies on the behavior of the vascular network in an intact mammal. Annual report, July 1, 1948. Jul 1948. 13p Mi $1.75 Ph $2.50
I. Vasomotor system 2. Blood—Circulation

PB 93130

Simon, L. and Butters, F.
Über verabreichung von medikamenten in depot- oder durantform mit bestimmter abgabezeit.

(Administration of medicines in depot storage or durational form at regular intervals). Jun 1940. 13p (Text in German) Mi $1.75 Ph $2.50
Reprint from "Klinische Wochenschrift" V. 19, no. 25, June 1940
1. Drugs—Administration and dosage—Germany

METALS AND METAL PRODUCTS

PB 94556

Bennett, John A.
Early detection of cracks resulting from fatigue stressing. Sep 1944. 7p photo, drawings, graphs Mi $1.25 Ph $1.25
Apparatus has been developed for detecting and measuring small changes in the deflection of a specimen in a rotating-beam fatigue machine. This change in deflection has been found to be a function of the size of the fatigue crack in the specimen. The correlation between deflection and crack size has been investigated. The apparatus may be used for indicating the formation of fatigue cracks or for following the progress of cracks as they propagate through the specimen.

PB 95054

Comstock, Gregory J. and others.
Determination of the effect of particle size on the properties of commercial iron powders and compacts made from these powders by conventional cold pressing and sintering techniques. Jul 1948. 324p photos, graphs, tables Mimeo: $3.00
1. Iron powders 2. Metallurgy, Powder 3. Stevens Institute of Technology, Powder Metallurgy Laboratory, Hoboken, N. J.

PB 91402

Deutsche Edelstahlwerke A. G., Krefeld, Ger.
Papers dealing with commercial or technical routine matters. Part I. 1939-1944. 805f (Text in German and Russian) Mi $9.00 Enl Pr $106.25
See PB 91403-91408 for Pts II-VII
See PB 91402s for abstracts. 13p. Mi $1.75 Ph $3.75
1. Steel—Germany 2. Micro BIOS FD 2406/45, Frames incorrectly numbered

PB 91403

Deutsche Edelstahlwerke A. G., Krefeld, Ger.
Papers dealing with commercial or technical routine matters. Part II. 1939-1944. 762f Mi $9.00 Enl Pr $106.25
See PB 91402, 91404-91408 for Pts I, III-VIII
See PB 91403s for abstracts. 13p. Mi $1.75 Ph $3.75
1. Micro BIOS FD 2406/45, Frames incorrectly numbered

PB 91404

Deutsche Edelstahlwerke A. G., Krefeld, Ger.
Papers dealing with commercial or technical routine matters. Part III. 1939-1944. 676f Mi $9.00 Enl Pr $88.75
See PB 91402, 91403, 91405-90408 for Pts I, 2, 4-7
See PB 91404s for abstracts. 13p. Mi $1.75 Ph $3.75
1. Micro BIOS FD 2406/45, Frames incorrectly numbered

PB 91405

Deutsche Ederstahlwerke A. G., Krefeld, Ger.
Papers dealing with commercial or technical routine matters. Part IV. 1939-1944. 586f Mi $9.00 Enl Pr $77.50
See PB 91402-91404, 91406-91408 for Pts I-III, V-VII
See PB 91405s for abstracts. 13p. Mi $1.75 Ph $3.75
1. Micro BIOS FD 2406/45, Frames incorrectly numbered

PB 91406

Deutsche Edelstahlwerke A. G., Krefeld, Ger.
Papers dealing with commercial or technical routine maters. Part V. 1939-1944. 751f Mi $9.00 Enl Pr $100.00
See PB 91402-91405, 91407-19408 for Pts I-IV, VI-VIII
See PB 91406s for abstracts. 13p. Mi $1.75 Ph $3.75
1. Micro BIOS FD 2406/45, Frames incorrectly numbered

PB 91407

Deutsche Edelstahlwerke A. G., Krefeld, Ger.
Papers dealing with commercial or technical routine matters. Part VI. 1939-1944. 792f Mi $9.00 Enl Pr $105.00
See PB 91402-19406, 91408 for Pts I-V, VII
See PB 91407 for abstracts. 13p. Mi $1.75 Ph $3.75
1. Micro BIOS FD 2406/45, Frames incorrectly numbered

PB 91408

Deutsche Edelstahlwerke A. G., Krefeld, Ger.
Papers dealing with commercial or technical routine matters. Part VII. 1939-1944. 278f Mi $9.00 Enl Pr $37.50
See PB 91402-91407 for Pts I-VI
See PB 91408s for abstracts. 13p. Mi $1. $1.75 Ph $3.75
1. Micro BIOS FD 2406/45, Frames incorrectly numbered

PB 90735

Elektrometall G.m.b.H., Stuttgart, Ger.
Tests on light alloys. 1935-1938. 41f (Text in German Mi $2.50 Enl Pr $7.50
See PB 90735s for abstracts. 1p. Mi $1.25 Ph $1.25
1. Alloys, Light metal—Tests—Germany 2. Micro BIOS FD 1646/47, Frames 1-41

PB 93758

Elmen, G. W. and Gaugler, E. A.

Special magnetic alloys and their application. Jan 1948. 15p diagr, Graphs Mi $1.75 Ph $2.50

This paper deals with rectangular hystereasis loops and some of their applications. It illustrates how superior operating characteristics can be obtained in contact rectifiers and magnetic amplifiers. It especially deals with alloys of the iron-nickel and iron-nickel-cobalt series. Two methods of producing rectangular loops are described, one using magnetic heat treatment and the other drastic rolling followed by special heat treatment. The latter is the process used at the Haraeus Vacuumschmelze A. G. Results obtained with alloys processed by these methods are illustrated. Also the results obtained by Dr. Mihara in Japan on magnetic heat treatment of silicon iron are described.

PB 81594

Gt. Brit. Ministry of Supply.

Aluminum alloy bars, extruded sections and forgings (not to exceed 6 inches diameter or minor sectional dimensions). Jan 1947. 8p tables Available from British Information Services, 30 Rockefeller Plaza, New York 20, N. Y. $.35

1. Bars, Aluminum alloy—Gt. Brit.

PB 90938

"Grund" (Ore mine), Bad-Grund, Harz, Ger.

Post-war report on lead, silver and zinc-ore mining. 1946. 50f (Text in English and German) Mi $2.50 Enl Pr $7.50

See PB 90938s for abstracts. 2p. Mi $1.25 Ph $1.25

1. Lead mines and mining—Germany 2. Silver mines and mining—Germany 3. Zinc mines and mining—Germany 4. Micro BIOS FD 1794/46, Frames 1-43

PB 90951

Heat treatment of structural steels and their hardening by rolling heat. 1944. 39f (Text in German) Mi $2.25 Enl Pr $6.25

See PB 90951s for abstracts. 1p. Mi $1.25 Ph $1.25

1. Steel—Hardening—Germany 2. Steel—Heat treatment—Germany 3. Micro BIOS FD 1814/46, Frames 45-85

PB 94229

Heimerl, George J. and Roy, J. Albert

Column and plate compressive strengths of aircraft structural materials, 17S-T aluminum-alloy sheet. Jun 1945. 21p diagrs, graphs, tables Mi $2.00 Ph $3.75

Column and plate compressive strengths of 17S-T aluminum-alloy sheet were determined both within and beyond the elastic range from tests of thin-strip columns and from local-instability tests of formed Z- and channel-section columns. These tests are part of an extensive research investigation to provide data on the structural strengths of various aircraft materials. Results are presented in form of curves and charts that may be used in the design and analysis of aircraft structures.

PB 94242

Heimerl, George J. and Fay, Douglas P.

Column and plate compressive strengths of aircraft structural materials extruded R303-T aluminum alloy. Oct 1945. 22p photos, drawings, graphs, tables Mi $2.00 Ph $3.75

Column and plate compressive strengths of extruded R303-T aluminum alloy were determined both within and beyond the elastic range from tests of thin-strip columns and local-instability tests of H-, Z-, and channel-section columns. These tests are part of an extensive research investigation to provide data on the structural strength of various aircraft materials. The results are presented in the form of curves and charts that are suitable for use in the design and analysis of aircraft structures.

PB 94471

Heimerl, George J. and Niles, Donald E.

Column and plate compressive strengths of aircraft structural materials extruded 14S-T aluminum alloy. May 1946. 25p photo, drawing, graphs, tables Mi $2.00 Ph $3.75

Column and plate compressive strengths of extruded 14S-T aluminum alloy were determined both within and beyond the elastic range from tests of flat-end H-section columns and from local-instability tests of H-, Z-, and channel-section columns. These tests are part of an extensive research investigation to provide data on the structural strength of various aircraft materials. The results are presented in the form of curves and charts that are suitable for use in the design and analysis of aircraft structures.

PB 89119

Hoesch, E.

Eisenerzabbau. (Iron ore mining). n.d. 1p (Text in German) Mi $1.25 Ph $1.25

1. Iron mines and mining—Germany

PB 90934

I. G. Farbenindustrie A. G., Bitterfeld, Ger.

Application of magnesium alloys as affecting design. 1938. 30f Mi $2.00 Enl Pr $5.00

See PB 90934s for abstracts. 1p. Mi $1.25 Ph $1.25

1. Magnesium alloys—Germany 2. Design, Industrial—Germany 3. Micro BIOS FD 1788/47, Frames 1-29

PB 90930

I. G. Farbenindustrie A. G., Bitterfeld, Ger.

Trade literature on "Elektronmetall". 1938. 53f (Text in German) Mi $2.75 Enl Pr $8.75

See PB 90930s for abstracts. 1p. Mi $1.25 Ph $1.25

1. Electron metals—Germany 2. Micro BIOS FD 1786/47, Frames 1-68

PB 90932

I. G. Farbenindustrie A. G., Bitterfeld, Ger.

Trade literature on "Hydronalium", or highly corrosion resistant aluminium alloy. 1937-1939. 23f (Text in German) Mi $2.00 Enl Pr $5.00

See PB 90932s for abstracts. 1p. Mi $1.25 Ph $1.25

1. Hydronalium—Germany 2. Aluminium alloys—Corrosion resistance—Germany 3. Micro BIOS FD 1787/47, Frames 1-22

PB 90936

I. G. Farbenindustrie A. G., Frankfurt am Main, Ger.

Soldering and welding practice and welding materials for aluminium and its alloys and for cables. 1941-1942. 36f (Text in German) Mi $2.25 Enl Pr $6.25

See PB 90936s for abstracts. 1p. Mi $1.25 Ph $1.25

1. Aluminum—Soldering—Germany 2. Aluminum—Welding—Germany 3. Aluminum alloys—Soldering—Germany 4. Aluminum alloys—Welding—Germany 5. Cables—Soldering—Germany 6. Cables—Welding—Germany 7. Micro BIOS FD 1789/47, Frames 1-33

PB 93041

Kaiser Wilhelm Institut für Eisenforschung

Results of tests on sintered iron and steel. 1945. 10f (Text in German) Mi $1.25 Enl Pr $2.50

See PB 93041s for abstracts. 2p. Mi $1.25 Ph $1.25

1. Iron, Sintered—Germany 2. Steel, Sintered—Germany 3. Micro BIOS FD 2458/46, Frames 159-168

PB 90950

Kempf, Herbert and Abresch, Carl

The determination of bound nitrogen in alloyed and unalloyed steels. Part II. 1940. 8f (Text in German) Mi $1.25 Enl Pr $2.50

See PB 90950s for abstracts. 2p. Mi $1.25 Ph $1.25

1. Steel—Nitrogen content—Germany 2. Micro BIOS FD 1813/46, Frames 38-43

PB 95008

Koenig, John H. and others.

Refractory insulating coatings for metals. Quarterly report no. 6, Jan 1—Mar 31, 1948. Oct 1948. 19p tables Mi $1.75 Ph $2.50

1. Metals—Coatings, Refractory 2. Coatings, Insulating

PB 94457

Kotanchik, Joseph N. and others.

Effect of artificial aging on the tensile properties of alclad 24S-T and 24S-T aluminum alloy. Aug 1943. 17p photos, drawing, graphs Mi $1.75 Ph $2.50

An experimental study was made to determine the effect of artificial aging on the tensile properties of alclad 24S-T and 24S-T aluminum-alloy sheet material. The results of the tests show that certain combinations of aging time and temperature cause a marked increase in the yield strength and a small increase in the ultimate strength; these increases are accompanied by a very large decrease in elongation. A curve is presented that shows the maximum yield strengths that can be obtained by aging this material at various combinations of time and temperature. The higher values of yield stress are obtained in material aged at relatively longer times and lower temperatures.

PB 90942

Krupp, Friedrich, Versuchsanstalt, Essen, Ger.

Behaviour of steel in saccharification of wood and processing of sugar. 1934-1944. 26f (Text in German) Mi $2.00 Enl Pr $5.00

See PB 90942s for abstracts. 1p. Mi $1.25 Ph $1.25

1. Wood—Saccharification—Germany 2. Sugar—Manufacture—Germany 3. Steel—Tests—Germany 4. Micro BIOS FD 1797/47, Frames 1-23

PB 90941

Krupp, Friedrich A. G., Essen, Ger.

Experience with nitrogen containing steel. 1942-1943. 31f (Text in German) Mi $2.25 Enl Pr $6.25

See PB 90941s for abstracts. 1p. Mi $1.25 Ph $1.25

1. Steel—Nitrogen content—Germany 2. Micro BIOS FD 1796/47, Frames 1-30

PB 91412

Krupp, Friedrich A. G., Essen, Ger.

Laboratory data on certain high-grade steels. 1941. 24f (Text in German) Mi $2.00 Enl Pr $5.00

See PB 91412s for abstracts. 1p. Mi $1.25 Ph $1.25

1. Steel—Specifications—Germany 2. Micro BIOS FD 5406/45, Frames 1-22

PB 95169

Krupp, Friedrich, A. G., Essen, Ger.

Survey on production and properties of hard metals for tools. 1944. 21f (Text in German) Mi $2.00 Enl Pr $5.00

See PB 95169s for abstracts. 2p. Mi $1.25 Ph $1.25

1. Hard metal industry—Germany 2. Micro BIOS FD 4171, Frames 1-20 3. BIOS FR 1519 LD, Frames 1-20

PB 90898

Metallgesellschaft A. G., Frankfurt am Main, Ger.

Five metallurgical reports. 1940-1944. 67f (Text in German) Mi $3.00 Enl Pr $10.00

See PB 90898s for abstracts. 4p. Mi $1.25 Ph $1.25

1. Metallurgy—Germany 2. Micro BIOS FD 1765/46, Frames 1-63 3. BIOS FR 575

PB 94547

Russell, H. W. and others.

Fatigue characteristics of spot-welded 24S-T aluminum alloy. Jun 1943. 88p photos, drawings, graphs, tables Mi $3.75 Ph $11.25

The results of this investigation may be summarized as follows: 1. The static shear strength of spot welds in lap joints of 24S-T alclad increases with increasing sheet thickness for thicknesses in the range 0.025 inch to 0.032 inch. This increase in static strength of spot welds also is evident in the fatigue properties. At low stresses (long life), variations in spot-weld quality appear to be not so important as in static tests or in high stress (short life) tests. 2. The static strength-weight ratio of stiffened panel sections in which the same stiffener is used with panels of various thicknesses is found to be higher for thin sheets than for thick ones. This is in agreement with results obtained by previous investigators. The low stress (long life) fatigue strength-weight ratio, however, shows an opposite trend in the range of sheet thickness from 0.025 to 0.051 inch. The reason for this condition is that the low-stress-fatigue results follow the same trend as the start of buckling in the material, and a thicker sheet tends to raise the stress at which buckling starts. 3. The presence of unstressed "scab" sheets attached by spot welds causes slight reduction in both the static yield strength and tensile strength with considerably greater reduction in ductility. The low stress (long life) fatigue strength of the sheet does not appear to be altered to any great extent by the presence of spot welds, since, in tests of this type, failure usually occurs in the 3-inch-radius fillet joining the ends and the test section of the sample in preference to the region along the line of the spot welds. 4. Metallographic examination indicates that the portion of the spot weld subject to fatigue loading is the sharp re-entrant angle formed by the two sheets at the weld button. It appears that fatigue failures always start in this "crack." Once fatigue failures have started, however, the course of the crack depends upon the system of stresses imposed. The extent of weld penetration appears to be more important in determining fatigue strength than it is in determining static strength.

PB 94539

Russell, H. W. and others.

Fatigue strength and related characteristics of aircraft joints. 1. Comparison of spot-weld and rivet patterns in 24S-T Alclad sheet—Comparison of 24S-T Alclad and 75S-T Alclad. Dec 1944. 73p photos, graphs, tables Mi $3.50 Ph $10.00

This report contains detailed results of a number of fatigue tests on spot-welded joints in aluminum alloys. The tests described include: 1. Fatigue tests on spot-welded lap joints in sheets of unequal thickness of alclad 24S-T. These tests indicate that the fatigue strength of a spot-welded joint in sheets of two different gages is slightly higher than that of a similar joint in two sheets of the thinner gage but definitely lower than that of a similar joint in two sheets of the thicker gage. 2. Fatigue tests on spot-welded alclad 75S-T. Spot-welded lap-joint specimens of alclad 75S-T were not any stronger in fatigue than similar specimens of alclad 24S-T. 3. Fatigue tests on lap-joint specimens spot-welded after various surface preparations. These included AC welding wire-brushed surfaces, DC welding wire-brushed surfaces, and DC welding chemically cleaned surfaces. While the AC welds were strongest statically, the DC welds on wire-brushed surfaces were strongest in fatigue. Specimens prepared in this way were very nearly as strong as the best riveted specimens tested for comparison. 4. Fatigue tests on specimens spot-welded with varying voltage so as to include a wide range of static spot-weld strengths. The fatigue strenghs were in the same order as the static strengths but showed less range. 5. Fatigue tests on lap-joint specimens with several patterns of spot welds. In general, those patterns which gave highest static strengths gave also highest fatigue strengths. 6. Fatigue tests on lap-joint specimens with various rivet patterns. Again fatigue strengths were in the same order as static strengths. These riveted joints were generally stronger in fatigue than corresponding spot-welded joints.

PB 94546

Russell, H. W. and others.

Fatigue strength and related characteristics of joints in 24S-T Alclad sheet. May 1944. 59p photos, graphs Mi $2.75 Ph $7.50

This report includes tension fatigue test results on the following types of samples of 0.040-inch alclad 24S-T: (1) monoblock sheet samples as received and after a post-aging heat treatment, (2) "sheet efficiency" samples (two equally stressed sheets joined by a single transverse row of spot welds) both as received and after post-aging, (3) spot-welded lap-joint samples as received and after post-aging, and (4) roll-welded lap-joint samples. Tests on the sheet material furnish base curves for the jointed samples and show the effect of post-aging on the sheet. Post-aging by heating 10 hours at 370° F raised the yield strength about 25 percent but raised the static ultimate only about 2.5 percent and did not, in general, measurably increase the fatigue strength values. Sheet efficiency tests showed the two sheets joined by spot welds to have about 84 percent of the static ultimate strength of the sheet material. Samples post-aged after welding had 90 percent of the static strength of the (post-aged) sheet. On the other hand, samples tested in fatigue showed, for a range in lifetimes from 10^4 cycles to 10^7 cycles, about 80 percent of the strength of the sheet material. The fatigue strengths were not greatly affected by post-aging after spot-welding. Neither post-aging after spot-welding nor post-aging before spot-welding, in general, increased the fatigue strength

or the static shear strength of the spot-welded lap-joint samples. In fact, there appeared a slight decrease in fatigue strength at a low (0.25) ratio a minimum load to maximum load owing to post-aging after spot-welding. Roll-welded lap-joint samples appeared slightly weaker in fatigue (and, except for the 3/8-in. weld-spacing, in static tests) than similar spot-welded samples. The difference between the fatigue strengths of roll-welded and of spot-welded samples varied from 0 percent to 18 percent, but the maximum difference was not greater than the variation in fatigue strength among commercially spot-welded samples. The variation in fatigue strength that might be expected in commercial practice is discussed briefly. Testing procedures used to obtain the data given in this report are described in reference 1.

PB 94544

Russell, H. W.

Fatigue strength and related characteristics of spot-welded joints in 24S-T Alclad sheet. Dec 1943. 56p photos, drawings, graphs, tables Mi $2.75 Ph $7.50

The investigations on spot-welded 24S-T alclad reported here lead to the following conclusions: 1. For lap-joint samples with a single row of spot welds, the static ultimate strength in pounds per inch of joint shows a maximum with varied spot spacing at a spacing of about 3/4 inch. On the contrary, the load sustained to a given lifetime in fatigue increases as the spot spacing decreases from 1 1/4 inches to 3/8 inch. 2. Lap-joint samples spot-welded by different companies showed variations in static strength as high as 20 percent and variations in fatigue strength as high as 35 percent. The variation in fatigue strength showed no correlation with variation in static strength. The spot welds in these samples differed considerably in shape as well as in size. 3. Tests on a few wire-stitched lap-joint samples showed that some of these with 8 to 12 staples had higher fatigue strengths than samples with 11 spot welds. 4. The fatigue strength of stiffened panels tested in compression shows a decrease of as much as 50 percent for an increase in spot-weld spacing from 3/4 inch to 2 inches. There is little correlation between the variation of fatigue strength and that of static strength. 5. Heat-cracked welds in stiffened panels were generally as strong in both static tests and fatigue tests as sound welds. The transverse cracks from overheating the welds did not, in general, incept fatigue failure.

PB 94557

Stickley, G. W.

Fatigue strengths of some wrought aluminum alloys. Jun 1942. 7p tables Mi $1.25 Ph $1.25

1. Aluminum alloys—Fatigue

PB 95115

Studiengesellschaft Hartmetall, Berlin

Appearance of alpha-1 and alpha-2 types of grain structure in Widia H, and the dependence of alpha grain size on grinding time and degree of pressure. 1939-1941. 13f (Text in German) Mi $1.75 Enl Pr $3.75

See PB 95115s for abstracts. 2p. Mi $1.25 Ph $1.25

1. Widia—Germany 2. Carbides—Germany 3. Micro BIOS FD 3882/47, Frames 1-12

PB 95116

Studiengesellschaft Hartmetall, Berlin.

Manufacture of tungsten carbide from scheelite and from tungsten metal and acid with graphite and carbon. 1937-1939. 29f (Text in German) Mi $2.00 Enl Pr $5.00

See PB 95116s for abstracts. 2p. Mi $1.25 Ph $1.25

1. Tungsten carbides—Manufacture—Germany 2. Micro BIOS FD 3818/47, Frames 1-28 3. BIOS FR 925, App. 1 LD

PB 93744

United Iron and Steel Works of Austria. Luiz, Austria.

Review of the early histroy of the iron and steel industry in Austria. n.d. 62p fold, drawings, fold maps, tables Mi $3.00 Ph $8.75

A review of the early history of the iron and steel industry in Austria, and some of the factors leading to the establishment of a large steel plant in Linz, Austria, are given. The available physical plant for manufacturing fertiliser, pig iron, steel ingots, steel castings, and fabricated steel is detailed. The production capacity of the various units is compared with the estimated demands for the products based upon postwar Austrian economy. Proposals are given for operation of the United Iron and Steel Works of Austria, Linz.

PB 90736

Verein Deutscher Eisenhuetteleute.

The weldability of steel. 1940. 16f (Text in German) Mi $1.75 Enl Pr $3.75

See PB 90736s for abstracts. 2p. Mi $1.25 Ph $1.25

1. Steel—Weldability—Germany 2. Micro BIOS FD 1647/46, Frames 1-14

PB 95094

Wipperman, Jr., A. G., Hagen, Ger.

Bicycle components. 1931. 158f Mi $6.00 Enl Pr $21.25

See PB 95094s for abstracts. 2p. Mi $1.25 Ph $1.25

1. Bicycles—Germany 2. Chains, Bicycle—Germany 3. Micro BIOS FD 1914/46, Frames 1-157 4. BIOS FR 640 LD, Frames 1-157

METEOROLOGY AND CLIMATOLOGY

PB 88916

Bruggencato, P. ten.

Sonnenprotuberanzen. (Solar prominences). Jan 1940. 12p photos, diagr (Text in German) Mi $1.75 Ph $2.50

1. Sun—Prominences—Germany

PB 92566

Hall, A. A.

Measurements of the intensity and scale of turbulence. Aug 1938. 42p drawings, graphs, tables Available from British Information Services, 30 Rockefeller Plaza, New York 20, New York $1.60

The technique for the experimental investigation of the intensity and scale of turbulence is discussed. The intensity of turbulence in a pipe was measured at two values of the Reynolds number; the results are compared with previous observations. The effect of contraction on natural wind tunnel turbulence was investigated, and with the aid of the results, a low-turbulence wind tunnel was produced. In the stream of the low-turbulence wind tunnel measurements were made of the intensity and scale of turbulence produced by square meshes. These results are compared with previous observations, and their bearing on the mechanism of turbulent flow is discussed.

PB 94222

Joyner, Upshur T.

Charts of pressure, density, and temperature changes at an abrupt increase in cross-sectional area of flow of compressible air. Jan 1945. 14p drawing, graphs, tables Mi $1.75 Ph $2.50

Equations have been derived for the change in the quantities that define the thermodynamic state of air—pressure, density, and temperature—at an abrupt increase in cross-sectional area of flow of compressible air. Results calculated from these equations are given in a table and are plotted as curves showing the variation of the calculated quantities with the area expansion ratio in terms of the initial Mach number as parameter. Only the subsonic region of flow is considered.

PB 94730

Liljoquist, Gösta H.

Isvintern 1946-1947. 1947. 16p maps, graphs, tables (Text in Swedish) Mi $1.75 Ph $2.50

Summary in English

1. Atmosphere—Temperature—Sweden 2. Ice conditions—Sweden 3. Sveriges Meteorologiska och Hydrologiska Institut, Stockholm. Meddelanden, ser. B, no. 5

PB 94726

Lindholm, Ferdinand and others.

Åsk-och överspänningsforskning: Askvädrens geografiska fördelning i Sverige. May 1945. 31p maps, graphs, tables (Text in Swedish) Mi $2.25 Ph $5.00

Summary in English

1. Thunderstorms—Forecasting—Sweden 2. Sveriges Meteorologiska och Hydrologiska Institut Stockholm. Meddelande, ser, B, no. 1

PB 94728

Lindholm, F.

Propagation to great distance of airwaves from the explosion at Oslo on December 19th 1943 as an indication of conditions in the upper atmosphere. 1946. 13p map, graphs, tables Mi $1.75 Ph $2.50

1. Sound—Transmission—Sweden 2. Atmosphere—Density—Sweden 3. Sveriges Meteorologiska och Hydrologiska Institut, Stockholm. Meddelanden, ser. B, no. 3

PB 94729

Lönnqvist, Olov

Förenkling av höjduträkningen vid radiosondering. (New method for simplifying aerological height computation). 1947. 9p diagr, tables (Text in Swedish) Mi $1.25 Ph $1.25

Summary in English

1. Atmosphere—Temperature—Sweden 2. Sveriges Meteorologiska och Hydrologiska Institut, Stockholm, Meddelanden, ser. B, no. 4.

PB 94248

Moskovitz, A. I. and Peiser, A. M.

Statistical analysis of the characteristics of repeated gusts in turbulent air. Nov 1945. 26p graphs, table Mi $2.00 Ph $3.75

Statistical methods have been applied to acceleration and airspeed data obtained with the XC-35 airplane during flights in turbulent air within convective clouds to determine some of the characteristics of repeated or closely spaced gusts pertinent to design problems. The results indicated that, in turbulent air within convective clouds, gusts tend to be contiguous and are seldom found isolated in space. In about two-thirds of the cases, successive gusts were opposite in direction and the first and the second gust seemed to have an equal change of being the larger. The over-all average spacing between repeated gusts was in good agreement with twice the average gust-gradient distance of 10 chords used in the present design requirements. For sets of two and three repeated gusts, average absolute gust intensities in the neighborhood of the design gust velocity of 30 feet per second were encountered. Within the scope of the data presented, sets of two and three repeated gusts with average absolute effective gust velocities of 25 feet per second and 23.5 feet per second, respectively, apparently will be encountered in turbulent air as often as single gusts of 30 feet per second.

PB 94769

Sveriges Meteorologiska och Hydrologiska Institut, Stockholm.

Arsbok, 28, 1946. I. Månadsöversikt över Väderlek och vattentillgäng. 1947. 81p maps, tables (Text in Swedish) Mi $3.75 Ph $11.25

1. Meteorological tables—Sweden

PB 94770

Sveriges Meteorologiska och Hydrologiska Institut, Stockholm.

Arsbok, 27, 1945. II. Meteorologi. I. Nederbörden i Sverige. (Precipitation in Sweden).

1947. 17p maps, tables (Text in Swedish) Mi $1.75 Ph $2.50
I. Precipitation—Sweden

PB 94768
Sveriges Meteorologiska och Hydrologiska Institut, Stockholm.
Arsbok, 28, 1946. II. Meteorologi. I. Nederbörden i Sverige. (Precipitation in Sweden). 1948. 18p map, tables (Text in Sweden) Mi $1.75 Ph $2.50
I. Precipitation—Sweden

PB 94766
Sveriges Meteorologiska och Hydrologiska Institut, Stockholm.
Arsbok, 27, 1945. III. Hydrologi och hydrografi. I. Hydrologiska iakttagelser i Sverige. 1947. 43p tables (Text in Swedish) Mi $2.50 Ph $6.25
I. Hydrology—Sweden

PB 94767
Sveriges Meteorologiska och Hydrologiska Institut, Stockholm.
Arsbok, 27, 1945. III. Hydrologi och hydrografi. 2. Vattenständer vid Sveriges kuster. 1947. 21p tables (Text in Swedish) Mi $2.00 Ph $3.75
I. Hydrology—Sweden

PB 94963
U. S. Camp Evans Signal Laboratory.
Atmosphaerische turbulenz und ozonschicht. (Atmospheric turbulence and the ozone layer). n.d. 39p graphs Mi $2.25 Ph $5.00
I. Atmosphere—Disturbances—Germany 2. Ozone layer—Germany

MINERALS AND MINERAL PRODUCTS, INCLUDING STONE, CLAY AND GLASS

PB 90937
B, LM & KM Laboratorium, Leipzig, Ger.
Reports on various moulding sands for foundries. 1936-1942. 96f (Text in German) Mi $4.25 Enl Pr $13.75
See PB 90937s for abstracts. 1p. Mi $1.25 Ph $1.25
I. Foundries—Molding—Germany 2. Sand casting—Germany 3. Micro BIOS FD 1791/47, Frames 1-194

PB 94905
Ban, Shizuo
Buckling load for eccentrically loaded reinforced concrete column: Abstract. Jun 1947. 1p Mi $1.25 Ph $1.25
I. Beams, Concrete—Buckling—Japan 2. Kyoto. Imperial University

—62073

PB 95190
Deutsche Gold- und Silberscheideanstalt, Rheinfelden, Ger.
Manufacture of silica K 3 from silicon tetrachloride. 1945. 15f (Text in German) Mi $1.75 Enl Pr $3.75
See PB 95190s for abstracts. 1p. Mi $1.25 Ph $1.25
I. Silica—Germany 2. Silicon tetrachloride—Production—Germany 3. Micro BIOS FD 1686/48, Frame 15

PB 91465
Duisberger Kupferhütte, Duisberg, Ger.
Report on the smelting of pyrite rich in lead or zinc. 1943. 9f (Text in German) Mi $1.25 Enl Pr $2.50
See PB 91465s for abstracts. 1p. Mi $1.25 Ph $1.25
I. Pyrites—Smelting—Germany 2. Micro BIOS FD 2950/47, Frames 1-7

PB 91292
I. G. Farbenindustrie A. G., Aken, Ger.
X-ray tests of magnesia compounds and oxychloride briquettes. 1939. 11f (Text in German) Mi $1.75 Enl Pr $3.75
See PB 91292s for abstracts. 1p. Mi $1.25 Ph $1.25
I. Magnesia—Analysis—Germany 2. Briquettes—Analysis—Germany 3. Micro BIOS FD 2933/47, Frames 1-10

PB 89150
Kröger, C.
Herstellung von tafelglas. (Fenster- und Spiegelglas). (Manufacture of plate glass (window glass and mirrors)). n.d. 8p drawings (Text in German) Mi $1.25 Ph $1.25
I. Glass, Plate—Manufacture—Germany

PB 95075
Nicholson, Michael
Mining practices at Matsuo pyrite mine, Japan. Sep 1948. 39p diagrs, tables Mi $2.25 Ph $5.00
The Matsuo pyrite mine is comparatively large by United States standards, and the conditions and problems facing it are typical of those facing other large mines in Japan. The extraction method used at the Matsuo mine is room-and-pillar mining. This method of extraction as practiced at the Matsuo property is extremely wasteful. The method should have been changed some time ago, as the ore reserves at the mine have been fairly well known for a number of years. Actually, no such change was contimplated until 1940, when open-pit mining was attempted. After a small amount of stripping was done further development of the open pit was suspended, pending the results of more detailed

study of costs and general feasibility of the plan. On 11 November 1939 surface subsidence, resulting from weakening of the mine's pillars by alternate leaching and drying, killed 85 persons and injured 59 others. Experts in various engineering fields who investigated the accident recommended that the workings be backfilled or that underground work be abandoned in favor of an open-pit operation. Although these recommendations were made eight years ago, no backfilling has been done, and plans for an open pit are still pending. Equipment in use at the mine is similar to that in use at American properties of comparable size. With minor exceptions the installation of all equipment and the effectiveness of its use are satisfactory. As in almost all Japanese mines, labor is limited to unskilled help procured locally and trained at the mine. The "boomer" or "floater", skilled or semiskilled mine laborer who drifts unhindered from one mining camp to another in most parts of the world, is unknown in Japan. As a result, the Japanese miner's experience is limited to the systems and methods in use at the only mine in which he has ever worked. This in no way hinders his effectiveness as a miner. Laborers at the Matsuo mine displayed an excellent knowledge of their jobs. They take advantage of slips, fissures, and other natural planes of breakage, so that the rounds break well with fewer holes and lower consumption of powder than might be expected. An abundance of adequately trained underground supervisors is available for every phase of the work. Reports are made each day by the appropriate foremen, and a daily summary of production, maintenance, and safety functions is prepared for the underground superintendent. Sectional production costs and total mine costs, including supplies and maintenance, are determined on a shift, daily, and monthly basis. Methods of correcting out-of-line costs are discussed with foremen. Because of the increased pressure for greater production of pyrite, urgently needed by the fertilizer industry, comparisons of crew performances for each section are made in order to increase efficiency. Considering the many difficulties besetting management and employees, the general picture of underground activities is good. However, improvements are needed in many phases of the work.

PB 90881

Noll, Dr. Alf.

Unternehmungs und konzernbildung in der Deutschen kolindustrie. (Formation of companies and concerns in the German Potash industry). 1940. 48f (Text in German) Mi $2.50 Enl Pr $7.50

See PB 90881s for abstracts. 2p. Mi $1.25 Ph $1.25

1. Potash—Germany 2. Micro BIOS FD 1751/46, Frames 1-43

PB 94829

Pennsylvania State College. School of Mineral Industries.

Investigation of refractory materials. Quarterly progress report. May 1948. 34p graph, tables Mi $2.25 Ph $5.00

1. Refractory materials

PB 90869

Ruhröl G.m.b.H., Welheim, Ger.

Pitch for hydrogenation. 1940. 5f (Text in German) Mi $1.25 Enl Pr $2.50

See PB 90869s for abstracts. 1p. Mi $1.25 Ph $1.25

1. Pitch—Hydrogenation—Germany 2. Micro BIOS FD 1742/47, Frames 1-4

PB 94965

Sandford, Folke

Undersökning av krossad kvarts från rädanefors med avseende på dess användning I stålgjuteriformar. Transactions of Chalmers university of technology no. 77, Gothenburg, Sweden. 1948. 16p graphs, tables (Text in Swedish) Mi $1.75 Ph $2.50

Summary in English

1. Quartz—Sweden

PB 95185

Studiengesellschaft Hardmetall, Berlin.

Demonstration of titanite; machining output figures; discussions of emergency organizations. 1943-1944. 15f (Text in German) Mi $1.75 Enl Pr $3.75

See PB 95185s for abstracts. 2p. Mi $1.25 Ph $1.25

1. Titanite—Germany 2. Micro BIOS FD 3954/47, Frames 1-13

ORDNANCE AND ACCESSORIES

PB 94346

Baals, Donald D. and Smith, Norman F.

Aerodynamic tests of an M-31 bomb in the 8-foot high-speed tunnel. Aug 1942. 17p photos, drawing, graphs Mi $1.75 Ph $2.50

1. Bombs—Tests

PB 94345

Pearson, E. O., Jr.

Aerodynamic tests of an AN-M-65-AZON 1000-pound radio-controlled bomb in the LMAL 16-foot high speed tunnel. Jun 1944. 44p photos, drawings, graphs Mi $2.50 Ph $6.25

Tests were made in the LMAL 16-foot high-speed tunnel to determine the aerodynamic characteristics of a 1000-pound AN-M-65-AZON radio-controlled bomb at Mach numbers ranging from 0.2 to 0.6. Over the Mach number range covered in the tests the hinge-moment coefficients, yawing-moment coefficients, and lateral-force coefficients exhibited no important changes with increasing speed. The drag coefficients increased gradually with increasing Mach number but no sudden increases were observed. The effect on the bomb aerodynamic characteristics

of antenna struts mounted on the bomb tail was found to be small. The rudder and aileron operating mechanisms were found to be capable of supplying several times the required torques for maximum control deflections at a Mach number of 0.6 at sealevel. The operating mechanism is also adequate for maximum control deflections at a Mach number of 1.0 provided that no appreciable increases in hinge-moment coefficient occur between M = 0.6 and M = 1.0. However, because of uncertainty as to the value of the hinge-moment coefficient at or near M = 1.0, the desirability of providing more powerful control mechanisms was indicated.

PB 94347

Pitkin, Marvin

Force tests of a 1/5-scale model of the type GB-5 controllable glide bomb. Mar 1944. 58p photos, drawings, graphs Mi $2.75 Ph $7.50

1. Bombs, Glider—Tests

PB 95057

U. S. Air Force.

North American: Modification of gun camera wiring provisions in control stick assembly—F-51H (P-51H). Jun 1948. 1p Mi $1.25 Ph $1.25

1. Guns, Machine—Firing mechanisms

PAPER AND ALLIED PRODUCTS

PB 90873

Berger & Becker, Düsseldorf, Ger.

Paper bag making, folding and gluing machinery. 1938-1939. 24f (Text in German) Mi $2.00 Enl Pr $5.00

See PB 90873s for abstracts. 1p. Mi $1.25 Ph $1.25

1. Bags, Paper—Germany 2. Micro BIOS FD 1744/46, Frames unnumbered 3. Micro BIOS DOC 1580/817, Frames unnumbered

PB 94810

Danielsen, Ragnar and Steenberg, Börje.

Quantitative determination of fibre orientation in paper. 1947. 5p photo, diagrs, graph Mi $1.25 Ph $1.25

Abstracts in Swedish and German

1. Paper—Fiber orientation—Sweden 2. Svenska Träforskningsinstitutet. Träkemi och Pappersteknik. Medddlande 22

PB 94806

Giertz, Hans Wilhelm

En bedomningsgrund för sulfitmassors blekbarhet. 1947. 2p graphs, tables (Text in Swedish) Mi $1.25 Ph $1.25

1. Lignosulfonic acid—Sweden 2. Svonska Träforskningsinstitutet. Träkomi och Pappersteknik. Meddelande 18

PB 94819

Hägglund, Erik

Den högre tekniska undervisningen gällande cellulosa ech papper i sverige. Återblick och framtida utveckling. 1948. 3p (Text in Swedish) Mi $1.25 Ph $1.25

1. Paper—Quality—Sweden 2. Cellulose, Wood—Sweden 3. Svenska Träforskningsinstitutet. Träkemi och Pappersteknik. Meddelande 31

PB 94820

Henrikson, Lars and Steenberg, Börje.

Urea resins for wet strength papers. Studies on chemicals imparting wet strength III. 1947. 10p graphs, tables Mi $1.25 Ph $1.25

Abstracts in Swedish and German

1. Paper—Wet strength—Sweden 2. Resins, Urea—Sweden 3. Svenska Träforskningsinstitutet. Träkemi och Pappersteknik. Meddelande 32

PB 94816

Ivarsson, Bertil and Steenberg, Börje

Paper as a visco-elastic body. III. Applicability of Erying's and Halsey's theory to stress-strain diagram of paper. 1947. 14p diagrs, graphs, tables Mi $1.75 Ph $2.50

Abstracts in Swedish and German

1. Paper—Tests—Sweden 2. Svenska Träforskningsinstitutet. Träkemi och Pappersteknik. Meddelande 28

PB 94807

Johansson, Axel

Determination of water by titration, a modified Karl Fischer method. 1947. 3p drawings, tables Mi $1.25 Ph $1.25

1. Substances—Water content—Sweden 2. Svenska Träforskningsinstitutet. Träkemi och Pappersteknik. Meddelande 19

PB 94802

Steenberg, Börje

Paper as a visco-elastic body. I. General survey. 1947. 14p graphs, tables Mi $1.75 Ph $2.50

Abstracts in Swedish and German

1. Paper—Tests—Sweden 2. Svenska Träforskningsinstitutet. Träkemi och Pappersteknik. Meddelande 14

PB 94811

Steenberg, Börje.

Paper as a visco-elastic body. II. Importance of stress relaxation in paper. 1947. 5p diagrs, graphs Mi $1.25 Ph $1.25

Abstracts in Swedish and German

1. Paper— Tests—Sweden 2. Svenska Träforskningsinstitutet. Träkemi och Pappersteknik. Meddelande 23

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PB 94799

Steenberg, Börje.
Studies on chemicals imparting wet strength. 2. Melamine resin colloids and wet strength paper production. 1947. 13p graphs, tables Mi $1.75 Ph $2.50
Abstracts in Swedish and German
1. Paper—Treatment—Sweden 2. Paper—Wet strength—Sweden 3. Svenska Träforskningsinstitutet. Träkemi och Pappersteknik. Meddelande 11

PERSONNEL APTITUDE TESTING AND JOB TRAINING

PB 90733

Dornier-Werke G.m.b.H., Friedrichshafen, Ger.
Training of aircraft electricians. 1942-1943. 71f (Text in German) Mi $3.50 Enl Pr $11.25
See PB 90733s for abstracts. 1p. Mi $1.25 Ph $1.25
1. Electricians—Germany 2. Micro BIOS FD 1643/47, Frames 1-68

PB 94987

U. S. Air Force.
Set: Mobile training Unit, B-50 aircraft. Jun 1948. 4p tables Mi $1.25 Ph $1.25
1. Trainers, Aviation—Equipment

PB 94986

U. S. Air Force.
Set: Training, individual, pilot, transition P-80. Mar 1948. 6p Mi $1.25 Ph $1.25
1. Personnel, Flying—Training

PB 94977

U. S. Air Force.
Set: Training, tactical, air. Jul 1948. 6p tables Mi $1.25 Ph $1.25
1. Personnel, Flying—Training

PHOTOGRAPHIC AND OPTICAL GOODS

PB 90879

I. G. Farbenindustrie A. G., Berlin
Articles on Agfa processes and products. 1944. 17f (Text in German) Mi $1.75 Enl Pr $3.75
See PB 90879s for abstracts. 1p. Mi $1.25 Ph $1.25
1. Agfacolor process—Germany 2. Micro BIOS FD 1749/47, Frames 1-15

PB 93745

I. G. Farbenindustrie A. G., Frankfurt am Main, Ger.
Schornsteinfeger, preparing the absorption layers. Jul 1945. 3p Mi $1.25 Ph $1.25
1. Films—Production—Germany 2. Schornsteinferger (Trade name)

PB 93746

I. G. Farbenindustrie A. G., Frankfurt am Main, Ger.
Schornsteinfeger, recipes of the adhesives. Jul 1945. 2p tables Mi $1.25 Ph $1.25
1. Schornsteinfeger (Trade name) 2. Films—Production—Germany

PB 90919

Janaer Glaswerk Schott & Gen., Jena, Ger.
Catalogue of Jena coloured optical filter glasses for scientific and technical purposes. 1934. 18f (Text in German) Mi $1.75 Enl Pr $3.75
See PB 90919s for abstracts. 1p. Mi $1.25 Ph $1.25
1. Filters, Optical—Germany 2. Micro BIOS FD 1778/47, Frames 1-17

PB 90946

Rheinmetall-Borsig A. G., Unterlüss, Ger.
Technical photographic measuring equipment. 1946. 7f (Text in German) Mi $1.25 Enl Pr $2.50
See PB 90946s for abstracts. 1p. Mi $1.25 Ph $1.25
1. Instruments, Measuring—Photographic—Germany 2. Micro BIOS FD 1806/46, Frames 138-143

PB 90730

Staatliche Ingenieurschule für Optik, Jena, Ger.
Course of lectures on optics, optical instruments and allied subjects. 1941. 137f (Text in German) Mi $5.50 Enl Pr $18.75
See PB 90730s for abstracts. 2p. Mi $1.25 Ph $1.25
1. Instruments, Optical—Germany 2. Optics—Germany 3. Micro BIOS FD 1640/47, Frames 1-133

PB 95136

U. S. Army Air Forces.
Handbook of instructions with parts catalog for the contact printer type A-10. (AGFA ANSCO). Apr 1944. 35p photos, drawings, diagrs, tables Mi $2.25 Ph $5.00
1. Photography—Equipment 2. Printing, Contact—Equipment

PB 39815r

U. S. Army Air Forces.
Set: Photographic, squadron, reconnaissance photographic. Jun 1947. 22p tables Mi $3.00 Ph $3.75
1. AAF TO 00-30-22A, rev.

PB 39928r

U. S. Army Air Forces:
Set: Photographic, technical unit, photographic. Jun 1947. 12p Mi $1.75 Ph $2.50
1. AAF TO 00-30-169, rev.

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PB 87438

U. S. Army Air Forces.
Set: Reproduction and printing, development and experimental, equipment, airborne communications. Feb 1947. 3p tables Mi $1.25 Ph $1.25
1. Photographic equipment 2. AAF TO 00-30-767

PB 90778

Zeiss, Carl A. G., Jena, Ger.
"Apo-Tessar" and "Apo-Planar" lenses and accessories for photolithography; coloured optical glass (for sunglasses, etc.). n.d. 65f photos, diagrs (Text in German) Mi $3.00 Enl Pr $10.00
See PB 90778s for abstracts. 1p. Mi $1.25 Ph $1.25
1. Photolithography—Germany 2. Apo-Tessar lens (Trade name) 3. Apo-Planar lens (Trade name) 4. Glasses, Sun—Lenses—Germany 5. Micro BIOS FD 1676/47, Frames 1-89

PB 90774

Zeiss, Carl, Jena, Ger.
Optical precision measuring instruments. 1938-1941. 599f (Text in German) Mi $9.00 Enl Pr $77.50
See PB 90774s for abstracts. 2p. Mi $1.25 Ph $1.25
1. Instruments, Optical—Germany 2. Optical Measurements—Germany 3. Micro BIOS FD 1673/47, Frames 1-598

PB 90814

Zeiss-Aerotopograph G.m.b.H., Jena, Ger.
Aircraft camera for series photographs. 1940-1943. 118f (Text in German) Mi $2.75 Enl Pr $8.75
See also Micro BIOS FD 1724/47 (PB 90849)
See PB 90814s for abstracts
1. Cameras, Aerial—Germany 2. Micro BIOS FD 1700/47, Frames 1-56

PB 90849

Zeiss-Aerotopograph G.m.b.H., Jena, Ger.
Horizon records and their uses. 1940. 32f (Text in German) Mi $2.25 Enl Pr $6.25
See also Micro BIOS FD 1700/47 (PB 90814)
See PB 90849s for abstracts. 1p. Mi $1.25 Ph $1.25
1. Horizon records—Germany 2. Micro BIOS FD 1724/47, Frames 2-32

PB 90777

Zeiss Nachrichten (Zeiss News)
Scientific articles relating to optical and photographical problems. 1940-1944. 93f (Text in German) Mi $4.25 Enl Pr $13.75
See also Micro BIOS FD 1671/47 (PB 90770)
See PB 90777s for abstracts. 3p. Mi $1.25 Ph $1.25
1. Optics—Germany 2. Photography—Germany 3. Micro BIOS FD 1675/47, Frames 1-140

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PHYSICS

General

PB 88932

Baldus, R.
Gegenüberstellung von drehkegel und einschaligen drehhyperboloid. (Comparison of a cone of revolution and a hyperboloid of revolution of one sheet). n.d. 3p (Text in German) Mi $1.25 Ph $1.25
1. Kinematics—Germany

PB 91884

Hay, A. Donald
Flow about semi-submerged cylinders of finite length. Oct 1947. 176p photos, diagrs, graphs, tables Mi $6.50 Ph $22.50
A brief summary of the nature of flow around completely submerged cylinders of infinite length (two-dimensional flow) and completely submerged cylinders of finite length (three-dimensional flow). is presented preliminary to the discussion of the main subject of this report: Flow about cylinders of finite length which protrude through the surface of a fluid, thereby causing gravity waves. Right-circular cylinders of from 1/8 inch to 8 inches in diameter, and from 1 inch to 32 inches in length (below the water line), were tested at Princeton University. No cylinder with a length-to-diameter ratio greater than 32 was tested. The range of speeds in feet per second, and the range of Reynolds and Froude's numbers based on cylinder diameter, are shown in Table I. These cylinders were photographed from both above and below the water surface. Photographs and graphs are included to indicate the dimensions of the various waves generated by the motion of the tested cylinders. A series of contour maps, of two cylinders of different diameter, show the wave heights at all points near the cylinders. They reveal how the wave pattern varies with changes of Reynolds and Froude's numbers. The water resistance of the above cylinders was measured, and the results plotted in dimensionless form. Indicated causes for the changes of resistance coefficient with changes of diameter, length, and speed, are analyzed in terms of the visual changes of wave form, as seen in the photographs and contour maps.

PB 91885

Hay, A. Donald and Runyon, John P.
Photographs and resistance measurements of semi-submerged right parallelepipedons. May 1947. 147p photos, graphs, tables Mi $5.75 Ph $18.75
Parallelepipedon models of 9" beam and lengths of 0" (flat plate), 9", 18", 27", 36", and 45" were towed at drafts of 1 1/2", 3", 6", 9", and 18" at speeds of from 1 to 8 feet per second. The models were not free either to trim or heave. Resistances were measured, and photographs were taken simultaneously from above and below water to show the flow patterns around the models. A series of three

models based on the 45° parallelepipedon, but with forefoot radii of 2 1/4", 4 1/2", and 9", were towed in the same range of conditions, and the same observations were made. Since the cross sections of the models were relatively large in comparison with the cross section of the test channel, the test results were corrected by the method developed in Report Number 460 of the United States Experimental Model Basin (L. Landweber: "Tests of a Model in Restricted Channels") in order to yield results which would probably have been obtained had the models been towed in deep open water. In order to confirm the validity of this method of correction, test data of other researchers into the effects of channel size and shape on model resistance were analyzed by this method, with some disagreement resulting. The uncorrected test data are presented in dimensional form, while the corrected test results are presented in dimensionless form, showing the effects on model resistance caused by varying the length, speed, draft, and forefoot radius. All test equipment, including novel photographic methods and equipment employed in obtaining pictures of the flow patterns from beneath the surface of the water, is explained in detail.

PB 93980

Hirsh, Ira J.

Binaural summation: Century of investigation. May 1948. 14p graph Mi $1.75 Ph $2.50

I. Acoustic research

PB 91879

Ishlinskii, A. Iu.

Plane strain in the case of linear strain hardening. 1947. 24p drawings Mi $2.00 Ph $3.75

I. Strain measurements—Russia

PB 93978

Miller, George A. and Taylor, Walter G.

Perception of repeated bursts of noise. Mar 1948. 11p drawing, graphs

Noise interrupted at a steady rate has essentially the same spectrum over the range of frequencies transduced by the earphone as does continuous noise. The frequency corresponding to the rate of interruption is not intensified in the spectrum. Consequently, the ability of listeners to respond differentially to the rate of interruption cannot be explained on the basis of a simple resonance theory of hearing. The point at which an interrupted noise becomes indistinguishable from a continuous noise depends upon the rate of interruption, the sound-time fraction, and the intensity of the noise. For a sound-time fraction of 0.5, the presence of interruptions can be detected at rates well above 1000 per second. Differential sensitivity to changes in the rate of interruption (with a sound-time fraction of 0.5) is poor above 250 interruptions per second. Also at these high rates the listener loses his ability to match the frequency of a pure tone to the rate of interruption. Presumably the ability to perceive interruptions in a random noise depends upon the synchronous firing of the fibers in the auditory nerve. This hypothesis is supported by the correspondence between auditory sensitivity to changes in the rate of interruption of a noise and the tactual sensitivity to changes in the frequency of a vibrating pressure applied to the skin.

PB 93020

Raentsch, K.

Principles and instruments for technical measurements of angles. 1944. 14f (Text in German) Mi $1.75 Enl Pr $3.75

See also PB 90465 FD 1458/47

See PB 93020s for abstracts. 1p. Mi $1.25 Ph $1.25

I. Angles—Germany 2. Micro BIOS FD 1459/47, Frames 1-14

PB 94964

Zimens, Karl-Erik.

Periodiska systemet av i dag. Transactions of Chalmers university of technology no. 78, Gothenburg, Sweden. 1948. 16p graph, tables (Text in Swedish) Mi $1.75 Ph $2.50

Summary in English

I. Radioactive substances—Sweden

Nuclear

PB 91843

Mark, J. Carson

Milne's problem for anisotropic scattering. May 1947. 36p diagrs Mi $2.25 Ph $5.00

Scattering functions which are linear and quadratic polynomials in the cosine of the scattering angle are considered, and also a particular case of a cubic. It is shown that for a linear law the angular distribution of emerging neutrons is the same as for isotropic scattering and that the neutron density differs from that in the isotropic case only by a term proportional to the distance from the boundary. For a quadratic law the Laplace transform of the neutron density and an expression for the angular distribution of emerging neutrons are given, and also the neutron density at the boundary and the constant in the asymptotic solution for the density. It is shown that in this case the maximum variation caused by anisotropy in the value of the neutron density at the boundary is about 1.3%, and that the maximum variation in the distance from the boundary measured in transport mean free paths at which the extrapolated asymptotic solution for the density will vanish is about .44%. For the particular cubic considered, these effects are shown to be even smaller.

PB 92472

May, A. N. and Hincks, E. P.

Evidence for an (n,α) reaction induced in O^{17} by thermal neutrons. Mar 1947. 11p Available

from British Information Services, 30 Rockefeller Plaza, New York 20, New York $.25

It can be shown from the masses involved that the reaction $O^{17}(n,\alpha)C^{14}$ should be exothermic by 1.72 Mev., and should therefore occur with thermal neutrons. As an attempt to detect the reaction an investigation was made of the pulse spectrum produced when an ionization chamber containing oxygen was placed in a flux of thermal neutrons. The pulses were amplified and then counted in a series of energy bands by means of a kicksorter. Two oxygen samples were compared, one being enriched (three times normal), and the other impoverished (0.5 times normal), in O^{17}. Differences between runs with these two gases shown a considerable number of pulses between 1 and 2 Mev., with a maximum at 1.4 Mev. Reasons are given for assigning these pulses to the above reaction, including considerations of the possibility that other exothermic neutron reactions occur. By comparing the number of pulses with the number produced by $N^{14}(n,p)C^{14}$ when the chamber contained air, a value of (1.9 ± 0.5) 10^{-28} cm.^{2} for the cross-section for the $O^{17}(n,\alpha)C^{14}$ reaction in ordinary oxygen was duduced. This gives a cross-section of $(0.46 \pm 0.11) \times 10^{-24}$ cm.^{2} per atom of the pure isotope O^{17}. The effect measured is about 20% of the total thermal neutron capture cross-section that has been reported for ordinary oxygen.

PB 94665

Huck, Otto

New high pressure insulating methods in cables, transformer, capacities, etc. Measures taken against atmospheric disturbances in high frequency receiving. New method for nuclear fission of atoms. May 1944-Sep 1945. 48f (Text in German and English) Mi $2.50 Enl Pr $7.50

1. Atomic power—Research—Germany 2. Insulation—Methods—Germany 3. Cables—Insulation—Germany 4. Radio interference—Elimination—Germany 5. Micro FIAT FM 33, Frames unnumbered

PB 95007

Henke, J. R.

Nuclear fission as source of power. Jun 1947. 16p Mimeo: $.50

1. Fission fragments—Energy measurements 2. Atomic power—Research 3. MDDC 1104

PB 94637

Watson, W. H.

Physics of slow neutrons. 1947. 42p graphs, tables Mi $2.50 Ph $6.25

1. Neutrons, Delayed

PHYSIOLOGY

PB 89159

Rein, Hermann

Wirkung des vagus auf das herz und herzflimmern. (Effect of the vagus on the heart and palpitation (in a dog)). n.d. 1p (Text in German) Mi $1.25 Ph $1.25

1. Dogs—Physiology—Germany

PB 89158

Skramlik, Emil von

Die wirkung des vaguszentrums auf das fischherz. (Effect of the vagus on the fish heart). n.d. 7p (Text in German) Mi $1.25 Ph $1.25

1. Fish—Physiology—Germany

PRINTING, PUBLISHING AND ALLIED INDUSTRIES

PB 93061

Goebel A. G., Darmstadt, Ger.

Trade catalog—Paper reeling, cutting, printing, etc., machinery; film reeling machines, etc. n.d. 307f photos Mi $9.00 Enl Pr $40.00

No abstract available

1. Printing equipment—Germany 2. Printing machinery—Germany 3. Paper handling machines—Germany 4. Micro BIOS FD 3125/48, Frame 307

PB 87161

U. S. Army Air Forces.

Kit: Draftsman. Sep 1947. 1p table Mi $1.25 Ph $1.25

1. Mechanical drawing— Equipment 2. AAF TO 00-30-634

PB 93657

Vaaler, Luther E. (Dr.)

Effect of temperature on the ferric chloride etching of copper. Jul 1948. 3p tables Mi $1.25 Ph $1.25

1. Etching 2. Battelle Memorial Institute, Columbus, O.

RUBBER AND RUBBER PRODUCTS

PB 94624

Ashton, H. W. and Flavel, T. W.

Production of monomeric styrene at Chemische Werke, Hüls. Mar 1947. 399p photos, fold diagrs, fold drawings, graphs, tables Mi $9.00 Ph $50.00

1. Styrene—Production—Germany 2. BIOS FR 1781,

PB 91422

Germany. Reichluftfahrtministerium.

Standards for rubber pipes and fittings. 1942. 91f (Text in German) Mi $4.25 Enl Pr $13.75

See PB 91422s for abstracts. 1p. Mi $1.25 Ph $1.25

1. Hose, Rubber—Germany 2. Micro BIOS FD 5732/46, Frames 1-93

PB 90897

Germany. Reichsamt für Wirtschaftsausbau
Reports of the working committee and lectures on synthetic rubber and acetylene chemistry. 1940-1942. 154f (Text in German) Mi $7.75 Enl Pr $28.75
See PB 90897s for abstracts 2p. Mi $1.25 Ph $1.25
1. Rubber, Synthetic—Germany 2. Acetylene chemistry—Germany 3. Micro BIOS FD 1764/47, Frames 1-219

PB 95194

I. G. Farbenindustrie A. G., Ludwigshafen, Ger.
Comparison of equipment for the production of Buna. 1945. 6f (Text in French) Mi $1.25 Enl Pr $2.50
See PB 95194s for abstracts. 1p. Mi $1.25 Ph $1.25
1. Rubber, Buna—Production—Germany 2. Micro BIOS FD 1679/48, Frame 6

PB 90962

I. G. Farbenindustrie A. G., Ludwigshafen, Ger.
Operating data of styrene catalysts. n.d. 3f (Text in German) Mi $1.25 Enl Pr $2.50
See PB 90962s for abstracts. 1p. Mi $1.25 Ph $1.25
1. Styrene—Catalysts—Germany 2. Micro BIOS FD 1843/46, Frames unnumbered 3. BIOS FR 75, LD, Frames unnumbered

PB 95182

I. G. Farbenindustrie A. G., Schkopau, Ger.
Acid regulated Buna S. 1939-1943. 42f Mi $2.50 Enl Pr $7.50
See PB 95182s for abstracts. 2p. Mi $1.25 Ph $1.25
1. Rubber, Buna—Germany 2. Buna S (Trade name) 3. Micro BIOS FD 2217/47, Frames 1-41

PB 91474

I. G. Farbenindustrie A. G., Schkopau, Ger.
After-run fatty acid salts as lubricating powders for rubber mixtures. 1942. 5f (Text in German) Mi $1.25 Enl Pr $2.50
See PB 91474s for abstracts. 1p. Mi $1.25 Ph $1.25
1. Powders, Lubricating—Germany 2. Rubber—Germany 3. Salts, Fatty acid—Germany 4. Micro BIOS FD 2330/47, Frames 1-3

PB 93074

I. G. Farbenindustrie A. G., Schkopau, Ger.
Buildings, equipment and manufacturing processes at the Buna works. 1937-1944. 135f (Text in German) Mi $5.50 Enl Pr $18.75
See PB 93074s for abstracts. 2p. Mi $1.25 Ph $1.25
1. Rubber, Buna—Production—Germany 2. Rubber, Buna—Production apparatus—Germany 3. Micro BIOS FD 2022/47, Frames 1-111

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PB 9522

I. G. Farbenindustrie A. G., Schkopau, Ger.
Buna S: Butadiene-chlorostyrene copolymers. 1942. 10f (Text in German) Mi $1.25 Enl Pr $2.50
See PB 95223s for abstracts. 1p. Mi $1.2 Ph $1.25
1. Buna S (Trade name) 2. Butadiene—Copolymers—Germany 3. Chlorostyrene—Copolymers—Germany 4. Micro BIOS FD 2210/47, Frames 1-9

PB 9302

I. G. Farbenindustrie A. G., Schkopau, Ger.
Buna S: Copolymers butadiene-isobutylene. Splitting of polymer I.B. 2488/IV(Lu) by means of ozone. 1938-1939. 6f (Text in German) Mi $1.25 Enl Pr $2.50
See PB 93026s for abstracts. 1p. Mi $1.2 Ph $1.25
1. Rubber, Buna—Germany 2. Buna S (Trade name) 3. Butadiene—Copolymers—Germany 4. Propene, 2-Methyl—Germany 5. Polymers—Germany 6. Micro BIOS FD 2207/47, Frames 1-5

PB 93029

I. G. Farbenindustrie A. G., Schkopau, Ger.
Buna S: polymerising properties of various butadiene derivatives. 1938-1942. 12f (Text in German) Mi $1.75 Enl Pr $3.75
See PB 93029s for abstracts. 1p. Mi $1.25 Ph $1.25
1. Rubber, Buna—Germany 2. Butadiene—Derivatives—Germany 3. Buna S (Trade name) 4. Micro BIOS FD 2213/47, Frames 1-11

PB 93052

I. G. Farbenindustrie A. G., Schkopau, Ger.
Buna S (Scientific report)—on cross-linking reactions on butadiene polymers. 1943. 21f (Text in German) Mi $1.75 Enl Pr $3.75
See PB 93052s for abstracts. 2p. Mi $1.25 Ph $1.25
1. Rubber, Buna—Germany 2. Buna S (Trade name) 3. Butadiene (Polymers) 4. Micro BIOS FD 2203/47, Frames 1-20

PB 93028

I. G. Farbenindustrie A. G., Schkopau, Ger.
Buna S copolymers butadiene-nitrile-styrene. 1943. 7f (Text in German) Mi $1.25 Enl Pr $2.50
See PB 93028s for abstracts. 1p. Mi $1.25 Ph $1.25
1. Rubber, Buna—Germany 2. Buna S (Trade name) 3. Copolymers—Germany 4. Micro BIOS FD 2209/47, Frames 1-6

PB 93030

I. G. Farbenindustrie A. G., Schkopau, Ger.
Buna S in continuous polymerisation. 1943. 8f (Text in German) Mi $1.25 Enl Pr $2.50

See PB 93030s for abstracts. 1p. Mi $1.25 Ph $1.25
1. Rubber, Buna—Germany 2. Buna S (Trade name) 3. Micro BIOS FD 2216/47, Frames 1-7

PB 91498

1. G. Farbenindustrie A. G., Schkopau, Ger.
Buna S plant; Copolymers of butadiene 1.3 with methacryl nitrile. Acrylic nitrile as a component of synthetic rubber. Regulation of speed of simultaneous polymerization and condensation. 1935-1941. 24f (Text in German) Mi $2.00 Enl Pr $5.00
See PB 91498s for abstracts. 2p. Mi $1.25 Ph $1.25
1. Buna S (Trade name) 2. Rubber, Buna—Germany 3. Butadiene—Copolymers—Germany 4. Acrylonitrile—Germany 5. Rubber, Synthetic—Components—Germany 6. Rubber, Synthetic—Polymerization—Germany 7. Rubber, Synthetic—Condensation—Germany 8. Micro BIOS FD 2247/47, Frames 1-22

PB 93022

1. G. Farbenindustrie A. G., Schkopau, Ger.
Butadiene plant, etc., butyraldehyde from crotonaldehyde. 1937-1944. 112f (Text in German) Mi $4.75 Enl Pr $16.25
See PB 93022s for abstracts. 3p. Mi $1.25 Ph $1.25
1. Butadiene—Production—Germany 2. Butyraldehyde—Production—Germany 3. Crotonaldehyde—Production—Germany 4. Micro BIOS FD 2131/47, Frames 1-111

PB 93027

1. G. Farbenindustrie A. G., Schkopau, Ger.
Butadiene-styrene copolymers with varying styrene content. 1939. 6f (Text in German) Mi $1.25 Enl Pr $2.50
See PB 93027s for abstracts. 1p. Mi $1.25 Ph $1.25
1. Butadiene—Copolymers—Germany 2. Styrene—Copolymers—Germany 3. Copolymers—Germany 4. Micro BIOS FD 2208/47, Frames 1-5

PB 93036

1. G. Farbenindustrie A. G., Schkopau, Ger.
Carbon black and propane asphalt in rubber mixtures. 1935-1941. 38f (Text in German) Mi $2.25 Enl Pr $6.25
See PB 93036s for abstracts. 2p. Mi $1.25 Ph $1.25
1. Carbon black—Germany 2. Asphalt, Propane—Germany 3. Rubber—Germany 4. Micro BIOS FD 2407/47, Frames 1-36

PB 93086

1. G. Farbenindustrie A. G., Schkopau, Ger.
The chemical bonding of sulphur in Vulcanized Buna S. 1944. 9f (Text in German) Mi $1.25 Enl Pr $2.50
See PB 93086s for abstracts. 1p. Mi $1.25 Ph $1.25
1. Rubber,, Buna—Bonds—Germany 2. Buna S (Trade name) 3. Micro BIOS FD 2230/47, Frames 1-8

PB 93055

1. G. Farbenindustrie A. G., Schkopau, Ger.
Comparative road and laboratory motor tire abrasion tests. 1939. 18f (Text in German) Mi $1.75 Enl Pr $3.75
See PB 93055s for abstracts. 2p. Mi $1.25 Ph $1.25
1. Tires, Rubber—Tests—Germany 2. Micro BIOS FD 2418/47, Frames 1-17

PB 91440

1. G. Farbenindustrie A. G., Schkopau, Ger.
Correspondence and recipes for rubber welding agents (Igelit PCU plant) and rubber solutions. 1944. 5f (Text in German) Mi $1.25 Enl Pr $2.50
See PB 91440s for abstracts. 1p. Mi $1.25 Ph $1.25
1. Rubber—Solutions—Germany 2. Igelit PCU (Trade name) 3. Rubber—Welding agents—Germany 4. Micro BIOS FD 2346/47, Frame 1

PB 91439

1. G. Farbenindustrie A. G., Schkopau, Ger.
Correspondence and recipes for thickening of rubber solutions. 1943. 4f (Text in German) Mi $1.25 Enl Pr $2.50
See PB 91439s for abstracts. 1p. Mi $1.25 Ph $1.25
1. Rubber—Solutions—Germany 2. Micro BIOS FD 2343/47, Frames 1-3

PB 93069

1. G. Farbenindustrie A. G., Schkopau, Ger.
Correspondence concerning miscellaneous supplementary products of the synthetic rubber plant. 1937-1945. 75f (Text in German) Mi $3.50 Enl Pr $11.25
See PB 93069s for abstracts. 2p. Mi $1.25 Ph $1.25
1. Rubber, Synthetic—Germany 2. Micro BIOS FD 2096/47, Frames 1-74

PB 91447

1. G. Farbenindustrie A. G., Schkopau, Ger.
Experiments in the production of styrene. 1941. 12f (Text in German) Mi $1.75 Enl Pr $3.75
See PB 91447s for abstracts. 2p. Mi $1.25 Ph $1.25
1. Styrene—Production—Germany 2. Micro BIOS FD 2595/47, Frames 1-8

PB 91460

1. G. Farbenindustrie A. G., Schkopau, Ger.
General directives for the production and working of Buna mixtures. 1937. 32f (Text in German) Mi $2.25 Enl Pr $6.25
See PB 91460s for abstracts. 1p. Mi $1.25 Ph $1.25

I. Rubber, Buna—Production—Germany 2. Micro BIOS FD 2405/47, Frames 1-59

PB 93034

I. G. Farbenindustrie A. G., Schkopau, Ger.
Graphs and tables showing thermal degradation and vulcanisation valves for Buna S. n.d. 38f (Text in German) Mi $2.25 Enl Pr $6.25
See PB 93034s for abstracts. 1p. Mi $1.25 Ph $1.25
I. Rubber, Buna—Germany 2. Buna S (Trade name) 3. Micro BIOS FD 2379/47, Frames 1-37

PB 91441

I. G. Farbenindustrie A. G., Schkopau, Ger.
Igelit PCU plant: production data on auxiliary materials for rubber tyres (fillers, vulcanisers, regenerators, anti-ageing media, etc.). 1943-1944. 23f (Text in German) Mi $2.00 Enl Pr $5.00
See PB 91441s for abstracts. 1p. Mi $1.25 Ph $1.25
I. Igelit PCU (Trade name) 2. Tires, Rubber—Germany 3. Micro BIOS FD 2347/47, Frames 1-22

PB 91442

I. G. Farbenindustrie A. G., Schkopau, Ger.
Igelit PCU plant: test reports on fillers for Buna, isoprenepolymers Lu, and polymeric phosphorous nitrile chloride. 1940-1943. 25f (Text in German) Mi $2.00 Enl Pr $5.00
See PB 91442s for abstracts. 1p. Mi $1.25 Ph $1.25
I. Igelit PCU (Trade name) 2. Rubber, Buna—Germany 3. Isoprene—Polymers—Germany 4. Phosphorous nitrile chloride—Germany 5. Micro BIOS FD 2348/47, Frames 1-24

PB 91499

I. G. Farbenindustrie A. G., Schkopau, Ger.
Igelit PCU type H for food can linings. 1942-1944. 10f (Text in German) Mi $1.25 Enl Pr $2.50
PB 91499s for abstracts. 1p. Mi $1.25 Ph $1.25
I. Igelrt PCU H (Trade name) 2. Containers, Food—Linings—Germany 3. Micro BIOS FD 2266/47, Frames 1-9

PB 93031

I. G. Farbenindustrie A. G., Schkopau, Ger.
Improvement of the insulating properties of Buna SS vulcanisates. 1942. 7f (Text in German) Mi $1.25 Enl Pr $2.50
See PB 93031s for abstracts. 1p. Mi $1.25 Ph $1.25
I. Rubber, Buna—Germany 2. Buna SS (Trade name) 3. Micro BIOS FD 2239/47, Frames 1-6

PB 93064

I. G. Farbenindustrie A. G., Schkopau, Ger.
Lecture on new rubber materials and their application. 1944. 22f (Text in German) Mi $2.00 Enl Pr $5.00
See PB 93064s for abstracts. 2p. Mi $1.25 Ph $1.25
I. Rubber—Germany 2. Rubber, Synthetic—Germany 3. Micro BIOS FD 2404/47, Frames 1-21

PB 91444

I. G. Farbenindustrie A. G., Schkopau, Ger.
Lectures on modern testing methods for plastic materials and on characterisation of Buna. 1941. 33f (Text in German) Mi $2.25 Enl Pr $6.25
See PB 91444s for abstracts. 2p. Mi $1.25 Ph $1.25
I. Plastics—Tests—Germany 2. Rubber, Buna—Germany 3. Micro BIOS FD 2365/47, Frames 1-31

PB 91443

I. G. Farbenindustrie A. G., Schkopau, Ger.
Lectures on synthetic rubber. 1941. 7f (Text in German) Mi $1.25 Enl Pr $2.50
See PB 91443s for abstracts. 1p. Mi $1.25 Ph $1.25
I. Rubber, Synthetic—Germany 2. Micro BIOS FD 2364/47, Frames 1-6

PB 91445

I. G. Farbenindustrie A. G., Schkopau, Ger.
Manual for the rubber industry. 1942. 81f (Text in German) Mi $3.75 Enl Pr $12.50
See PB 91445s for abstracts. 1p. Mi $1.25 Ph $1.25
I. Rubber industry—Germany 2. Micro BIOS FD 2421/47, Frames 1-107

PB 93060

I. G. Farbenindustrie A. G., Schkopau, Ger.
Manufacture of "Koresin". 1943-1945. 96f (Text in German) Mi $4.25 Enl Pr $13.75
See PB 93060s for abstracts. 2p. Mi $1.25 Ph $1.25
I. Tires, Rubber—Germany 2. Koresin (Trade name) 3. Micro BIOS FD 2592/47, Frames 1-95

PB 95221

I. G. Farbenindustrie A. G., Schkopau, Ger.
Methods for preparing pure butylene, butadiene, propylene, and miscellaneous notes. 1940-1944. 22f (Text in German) Mi $2.00 Enl Pr $5.00
See PB 95221s for abstracts. 1p. Mi $1.25 Ph $1.25
I. Butylene—Preparation—Germany 2. Butadiene—Preparation—Germany 3. Propene—Preparation—Germany 4. Micro BIOS FD 2098/47, Frames 1-21

PB 91493

I. G. Farbenindustrie A. G., Schkopau, Ger.
Miscellaneous reports, graphs, notes, etc., concerning the butol distilling plant. 1938-1944. 131f (Text in German) Mi $5.50 Enl Pr $18.75
See PB 91493s for abstracts. 2p. Mi $1.25 Ph $1.25
I. Butanediol—Distillation—Germany 2. Micro BIOS FD 2110/47, Frames 1-122

PB 93025

I. G. Farbenindustrie A. G., Schkopau, Ger.
Monthly progress reports on processing Buna S. 1943-1944. 44f (Text in German) Mi $2.50 Enl Pr $7.50
See PB 93025s for abstracts. 2p. Mi $1.25 Ph $1.25
1. Buna S (Trade name) 2. Rubber, Buna—Germany 3. Micro BIOS FD 2195/47, Frames 1-43

PB 93079

I. G. Farbenindustrie A. G., Schkopau, Ger.
Polystyrene EF plant. Polystyrole EN and Polystyrol-solution L25. 1943-1944. 5f (Text in German) Mi $1.25 Enl Pr $2.50
See PB 93079s for abstracts. 1p. Mi $1.25 Ph $1.25
1. Polystyrene—Production—Germany 2. Polystyrol EN (Trade name) 3. Polystyrol L25 (Trade name) 4. Micro BIOS FD 2560/47, Frames 1-4

PB 93050

I. G. Farbenindustrie A. G., Schkopau, Ger.
Polystyrene EP plant: Polystyrol D, 30%. 1943. 3f (Text in German) Mi $1.25 Enl Pr $2.50
See PB 93050s for abstracts. 1p. Mi $1.25 Ph $1.25
1. Polystyrene—Production—Germany 2. Polystyrol—Production—Germany 3. Micro BIOS FD 2559/47, Frames 1-2

PB 93037

I. G. Farbenindustrie A. G., Schkopau, Ger.
Programme of bonding tests with Buna 32A. n.d. 6f (Text in German) Mi $1.25 Enl Pr $2.50
See PB 93037s for abstracts. 1p. Mi $1.25 Ph $1.25
1. Rubber, Buna—Germany 2. Buna 32A (Trade name) 3. Micro BIOS FD 2425/47, Frames 1-5

PB 93078

I. G. Farbenindustrie A. G., Schkopau, Ger.
Report concerning the production of butyl acetate from butanol. 1943. 17f (Text in German) Mi $1.75 Enl Pr $3.75
See PB 93078s for abstracts. 2p. Mi $1.25 Ph $1.25
1. Acetic acid, Butyl ester—Germany 2. Butanol—Germany 3. Micro BIOS FD 2115/47, Frames 1-16

PB 93075

I. G. Farbenindustrie A. G., Schkopau, Ger.
Rubber plasticity tests by means of various plastometers; equipment for testing the cold resistance of plastics. 1938-1939. 38f (Text in German) Mi $2.25 Enl Pr $6.25
See PB 93075s for abstracts. 1p. Mi $1.25 Ph $1.25
1. Rubber—Plasticity—Germany 2. Plastometers—Germany 3. Plastics—Temperature effects—Germany 4. Micro BIOS FD 2381/47, Frames 1-37

—62073

PB 95091

I. G. Farbenindustrie A. G., Schkopau, Ger.
Scientific reports on the influence of phenyl-beta-napthylamine on the properties of Buna S. 1939-1943. 68f (Text in German) Mi $3.00 Enl Pr $10.00
See PB 95091s for abstracts. 2p. Mi $1.25 Ph $1.25
1. Buna S (Trade name) 2. Rubber, Buna—Germany 3. 2-Naphthylamine, N-phenyl 4. Micro BIOS FD 2206/47, Frames 1-65

PB 93065

I. G. Farbenindustrie A. G., Schkopau, Ger.
Scientific reports on the influence of vinyl-cyclohexane and divinylbenzene on Buna S polymers. 1939-1941. 20f (Text in German) Mi $2.00 Enl Pr $5.00
See PB 93065s for abstracts. 2p. Mi $1.25 Ph $1.25
1. Buna S (Trade name) 2. Polymers—Germany 3. Cyclohexane, Vinyl—Germany 4. Benzene—Derivatives—Germany 5. Micro BIOS FD 2205/47, Frames 1-19

PB 91497

I. G. Farbenindustrie A. G., Schkopau, Ger.
Test reports on Buna S. 1939-1944. 614f (Text in German) Mi $9.00 Enl Pr $81.25
See PB 91497s for abstracts. 1p. Mi $1.25 Ph $1.25
1. Buna S (Trade name) 2. Micro BIOS FD 2190/47, F Frames 1-594

PB 93082

I. G. Farbenindustrie A. G., Schkopau, Ger.
Testing of Igelit PCU for heat resistance, deformation, K-value, M-number. 1940-1942. 12f (Text in German) Mi $1.75 Enl Pr $3.75
See PB 93082s for abstracts. 1p. Mi $1.25 Ph $1.25
1. Igelit PCU (Trade name) 2. Micro BIOS FD 2368/47, Frames 1-11

PB 93091

I. G. Farbenindustrie A. G., Schkopau, Ger.
Tests of the effects of plasticisers and softeners, accelerators, fillers and carbon black on Buna. 1941-1943. 148f (Text in German) Mi $5.75 Enl Pr $20.00
See PB 93091s for abstracts. 1p. Mi $1.25 Ph $1.25
1. Rubber, Buna—Tests—Germany 2. Buna (Trade name) 3. Micro BIOS FD 2378/47, Frames 1-143

PB 91283

I. G. Farbenindustrie A. G., Schkopau, Ger.
Traveller's reports relating to the production of factice incl. "Godelan" substitute factice.

1940-1942. 8f (Text in German) Mi $1.25 Enl Pr $2.50

See also Micro BIOS FD 2682/47 (PB 91260) to Micro BIOS FD 2702/47 (PB 91284)

See PB 91283s for abstracts. 1p. Mi $1.25 Ph $1.25

I. Factices—Manufacture—Germany 2. Micro BIOS FD 2701/47, Frames 1-9

PB 95228

I. G. Farbenindustrie A. G., Schkopau, Ger.

Trials in synthetic latex washing methods, concrete tanks for storage of latex, and Igelite lined weir boxes. 1939-1942. 79f (Text in German) Mi $3.50 Enl Pr $11.25

See PB 95228s for abstracts. 2p. Mi $1.25 Ph $1.25

I. Rubber, Latex—Washing—Germany 2. Rubber, Latex—Storage—Germany 3. Micro BIOS FD 2284/47, Frames 1-78

PB 95164

Ruhrchemie A. G., Oberhausen, Ger.

Notes and memorandums on Fischer-Tropsch synthesis. 1933-1943. 63f (Text in German) Mi $3.00 Enl Pr $10.00

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See PB 95164s for abstract. 2p. Mi $1.25 Ph $1.25

I. Fischer-Tropsch process 2. Micro BIOS FD 3635/47, Frames 1-62

PB 91396

Weinheimer Gummiwarenfabrik G.m.b.H., Weinheim. Ger. and Deutsche Aktivkohle G.m.b.H., Frankfurt, Ger.

Production of rubber-goods. Activated carbon for anti-gas filters. List of products of a confidential nature. 1940-1945. 1217f tables (Text in German) Mi $9.00 Enl Pr $158.75

See PB 91396s for abstracts. 7p. Mi $1.25 Ph $1.25

I. Rubber goods—Manufacture—Germany 2. Carbon, Activated—Uses—Germany 3. Filters, Anti-gas—Germany 4. Chemicals—Germany 5. Micro CIOS 2280, Pts. 1-2, Frames 1-1226 6. Micro BIOS FD 5259/45, Pts. 1-2, Frames 1-1226

STRUCTURAL ENGINEERING, INCLUDING BUILDING MATERIALS

PB 94258

Batdorf, S. B. and others.

Critical combinations of longitudinal and transverse direct stress for an infinitely long flat plate with edges elastically restrained against rotation. Mar 1946. 20p drawings, graphs, tables Mi $1.75 Ph $2.50

A theoretical investigation was made of the buckling of an infinitely long flat plate with edges elastically restrained against rotation under combinations of longitudinal and transverse direct stress. Interaction curves are presented that give the critical combinations of stress for several different degrees of elastic edge restraint, including simple support and complete fixity. It was found that an appreciable fraction of the critical longitudinal stress may be applied to the plate without any reduction in the transverse compressive stress required for buckling.

PB 94789

Bergstrom, Moje and Johannesson, Paul

Utexperimentering av normaltyp for branddorrar. (Tests for establishing a standard type of fireproof doors). 1948. 33p photos, drawings, graphs (Text in Sweden) Mi $2.25 Ph $5.00

1. Doors, Fireproof—Sweden 2. Sweden. Statens Provningsanstalt

PB 94416

Boughan, Rolla B. and Baab, George W.

Charts for calculation of the critical compressive stress for local instability of idealized web- and T-stiffened panels. Aug 1944. 14p drawings, graphs, tables Mi $1.75 Ph $2.50

Charts are presented for the calculation of the critical compressive stress—the stress at which local instability occurs—for idealized web- and T-stiffened panels, and examples of the use of the charts are given.

PB 94270

Dow, Norris F. and Hickman, William A.

Preliminary investigation of the relation of the compressive strength of sheet-stiffener panels to the diameter of rivet used for attaching stiffeners to sheet. Nov 1944. 10p photo, drawing, graphs, table Mi $1.25 Ph $1.25

Compressive tests were made of 24S-T aluminum-alloy sheet-stiffener panels, which had five ratios of stiffener thickness to sheet thickness. For each ratio the rivets used to attach the stiffeners to the sheets had five (except in one case, four) different diameters. The tests showed that for the panels of this investigation, which failed by local buckling at average stresses greater than 35,000 psi, the compressive strengths increased with an increase in the diameter of the rivets for the rivet spacings used until the ratio of rivet diameter to over-all thickness (sheet plus stiffener) reached approximately 1.25.

PB 94246

Duberg, John E. and Brilmyer, Harold G.

Tests and approximate analysis of bending stresses due to torsion in a D-section box. May 1944. 12p drawings, graphs Mi $1.75 Ph $2.50

Strain surveys were made on the stringers reinforcing a D-section box loaded in torsion and restrained from warping at the root. On the basis of the tests, a procedure is suggested for estimating the bending stresses due to torsion that occur near the flange of a D-section box. A similar test of a triangular-section box showed that for such a section there were no significant bending stresses due to torsion, a fact which was also shown theoretically.

PB 94454

Gottlieb, Robert

Tests of a stress-carrying door in compression. Sep 1942. 6p photo, drawings, graphs Mi $1.25 Ph $1.25

1. Doors—Stresses

PB 90495

Graf, Otto

Suitable steel for girders. 1943. 104f (Text in German) Mi $4.50 Enl Pr $15.00

From issue No. 15, 1943 of "Berichte des Deutschen Ausschusses für Stahlbau."

See PB 90495s for abstracts. 2p Mi $1.25 Ph $1.25

1. Girders—Welding—Tests—Germany 2. Micro 8IOS FD 1483/47, Frames 1-104

PB 92688

Gt. Brit. Ministry of Health.

Housing progress. Description of exhibit at ideal home exhibition Olympia, 1948. 1948. 12p photos, drawings Available from British Information Services, 30 Rockefeller Plaza, New York 20, New York $.10

1. Housing—Gt. Brit.

PB 94939

Hayashi, Tsuyoshi

Buckling of orthogonal anisotropic thin-walled-cylinders under torsion: Abstract. Jun 1944. 9p diagrs, graphs Mi $1.25 Ph $1.25

1. Tubes—Buckling—Japan 2. Tokyo. Imperial University. Faculty of Engineering

PB 94947

Hiruta, Sutetaro

Research on the stability of structural members of non-uniform cross section: Abstract. n.d. 2p Mi $1.25 Ph $1.25

1. Beams—Stability—Japan 2. Waseda. Imperial University

PB 94909

Hiruta, Sutetaro

Research on the stability of structural members of non-uniform cross section: Abstract. Nov 1947. 5p drawings Mi $1.25 Ph $1.25

I. Panels—Stability—Japan 2. Waseda. Imperial University. Department of Architectural Engineering

PB 93961

Hopkins, H. G.

Solution of small displacement, stability or vibration problems concerning a flat rectangular panel when the edges are either clamped or simply supported. Jun 1945. 20p diagrs, tables Available from British Information Services, 30 Rockefeller Plaza, New York 20, New York. $1.15

This report describes an energy method for the exact solution of problems concerning the small displacements, stability or vibration of a flat rectangular panel when the edges are either clamped or simply supported. The influence of stiffeners which are parallel to one pair of edges, and situated in pairs on opposite sides of the panel so that the neutral axis of each stiffener pair lies in the middle surface of the panel, is taken into account. The method is not only applicable to isotropic panels but also to aeolotropic panels when the material of the panel has two directions of elastic symmetry parallel to the edges. The final solution of the problems depends on an infinite set of linear equations for small displacement problems or on an infinite determinantal equation for stability and vibration problems. The important feature of the analysis given is that it enables a direct approach to be made to these equations in any particular problem. It is not in general possible to obtain a direct solution of the final equations and it is necessary to approximate and consider a finite set of linear equations or a finite determinantal equation derived from the more important terms in the analytical expression for the transverse displacement of the panel. Here, physical intuition and, if available, experimental data serve as a guide and the accuracy of the final results so obtained is gauged by the rate of convergence with the increase in the number of terms considered. The general method of solution is applied first to the free vibration of a square panel when all the edges are clamped, and second to the buckling of a square panel under shear when three edges are clamped and one edge is simply supported.

PB 94940

Imachi, Isamu

On the axial impact on a thin strut considering its lateral stability: Abstract. n.d. 17p graphs Mi $1.75 Ph $2.50

I. Girders—Stability—Japan 2. Nagoya. Imperial University. Faculty of Engineering

PB 94930

Iwato, Shigemasa

Approximate calculation of the buckling load of a thin circular plate. Oct 1947. 8p graphs Mi $1.25 Ph $1.25

I. Panels—Buckling—Japan 2. Nagoya. Imperial University. Faculty of Engineering

PB 94929

Iwato, Shiegmasa

Buckling of a rectangular plate whose one edge is clamped while the other three edges freely supported. Jun 1947. 6p drawings Mi $1.25 Ph $1.25

I. Panels—Buckling—Japan 2. Nagoya. Imperial University. Faculty of Engineering

PB 94926

Iwato, Shiegmasa

Buckling of a rectangular plate whose two adjacent edges are clamped while the other two edges freely supported. Nov 1944. 6p drawing Mi $1.25 Ph $1.25

I. Panels—Buckling—Japan 2. Nagoya. Imperial University. Faculty of Engineering

PB 94904

Kanno, Maketo

Approximate calculation method of steel or wooden compressed members according to the new calculation standard: Abstract. Mar 1948. 3p tables Mi $1.25 Ph $1.25

I. Beams, Steel—Buckling—Japan 2. Beams, Wooden—Buckling—Japan 3. Japan. Ministry of Education. Educational Facilities Bureau

PB 94937

Katsuta, Chitoshi

Buckling of an elastic long column under high speed loading: Abstract. Nov 1947. 10p graphs, table Mi $1.25 Ph $1.25

I. Tubes—Buckling—Japan

PB 94220

Kempner, Joseph

Application of a numerical procedure to stress analysis of stringer-reinforced panels. Mar 1945. 30p drawing, graphs, table Mi $2.00 Ph $3.75

A numerical procedure, as well as the underlying theory and assumptions, is presented for the calculation of the stringer stresses and shear stresses in reinforced panels. The method may be applied to all panel problems in which the loads may be considered acting in the plane of the sheet. Examples are given to illustrate the use of the method for axially loaded panels with and without rectangular cut-outs and for the covers of box beams with and without rectangular cut-outs. The results of this procedure are compared with the experimental data and the approximate engineering methods of analysis

of previous NACA papers from which the problems are obtained.

PB 94924

Kito, Fumiki

Theoretical consideration on the effect of impulsive load upon structures which is under the action of compressive loads: Abstract. n.d. 1p Mi $1.25 Ph $1.25

1. Beams—Load—Japan 2. Keio-Gyuku University. Faculty of Engineering, Tokyo

PB 94920

Kondo, Seiji

Stability of bent and twisted beams with variable cross-section under constant bending moment: Abstract. 1943. 8p drawings Mi $1.25 Ph $1.25

1. Beams—Stability—Japan 2. Nagaoka College of Technology, Nagaoka, Japan

PB 94271

Kotanchik, Joseph N. and others.

Compressive strength of flat panels with Z- and hat-section stiffeners. Jun 1944. 32p photos, drawings, graphs Mi $2.25 Ph $5.00

Compression tests were made of 247 panels with Z-section stiffeners and 304 panels with hat-section stiffeners. The specimens were constructed from artificially aged Alclad 24S aluminum alloy with minimum guaranteed yield strengths of 64 and 57 ksi for the stiffener and sheet materials, respectively. Results of the tests are presented in charts that show the average stresses at the load for buckling of the sheet and at the maximum load. These average stresses have been adjusted to minimum guaranteed properties of the materials.

PB 94900

Kudo, Tadao

Consideration about the application of an approximate method for solving the differential equation to calculate the critical load of the column with varying cross section: Abstract. n.d. 1p Mi $1.25 Ph $1.25

1. Beams—Load—Japan

PB 94267

Kuhn, Paul and Levin L. Ross.

Empirical formula for the critical shear stress of curved sheets. Jan 1945. 21p photo, drawing, graphs, tables Mi $2.00 Ph $3.75

Tests were made to determine the critical shear stress of curved sheets. The empirical formula derived from these tests is applicable to panels with a ratio of radius to thickness of 300 or greater, a central angle of 1 radian or less, and a ratio of arc length to axial length not greater than 1. In some panels with faulty workmanship the critical shear stresses were found to be much lower than predicted by the formula. The critical shear stress decreased with repeated loading, but no general laws were found for determining the amount of decrease.

PB 94404

Kuhn, Paul and Diskin, Simon H.

On the shear strength of skin-stiffener panels with inspection cut-outs. Mar 1945. 16p photos, drawings, tables Mi $1.75 Ph $2.50

Strength tests and strain measurements were made of 19 long shear panels with rectangular inspection cut-outs; that is, cut-outs obtained by removing the sheet between two adjacent stringers without cutting any stringer. The test results indicated that the stress concentration existing at low stresses tends to disappear at very high stresses and that the assumption of uniform stress distribution leads to a satisfactory correlation of the test results. Stiffening of the sheet bay containing the cut-out was found to have practically no effect on the panel strength. Reinforcing the bay containing the cut-out by means of doubler plates raised the strength of the panel, but the efficiency of the doubler plates varied widely and was low in all cases.

PB 94223

Kuhn, Paul and others.

Secondary stresses in open box beams subjected to torsion. Nov 1944. 20p drawings, graphs Mi $1.75 Ph $2.50

In open box beams subjected to torsion, secondary stresses arise owing to lateral bending of the spar caps. The present paper outlines a simple method for estimating the magnitude of these stresses and gives the results of tests of an open box beam in the neighborhood of a discontinuity where the cover changed from the top to the bottom of the box.

PB 94926

Kuranishi, Masatsugu

Buckling stress of compound plates: Abstract. n.d. 1p Mi $1.25 Ph $1.25

1. Panels—Buckling—Japan

PB 94925

Kuranishi, Masatsugu

Buckling stress of orthotropic plates, having especially inclinded axes of elastic symmetry under compressive and shearing loads: Abstract. n.d. 1p Mi $1.25 Ph $1.25

1. Panels—Buckling—Japan

PB 94927

Kuranishi, Masatsugu

Buckling stress of thin cylinder under compressive load (Axial-symmetric deformation): Abstract. n.d. 1p Mi $1.25 Ph $1.25

1. Tubes—Buckling—Japan

PB 94946

Kuranishi, Masatsugu

Buckling stress of thin cylinder under compressive load (Multi-lobed deformation): Abstract. n.d. 1p Mi $1.25 Ph $1.25

1. Panels, Curved—Buckling—Japan

PB 94908

Kurata, Muneaki

Beams and columns of uniform strength solved by the method of calculus of variation: Abstract. Oct 1947. 3p Mi $1.25 Ph $1.25

1. Beams—Stress analysis—Japan
2. Hokkaido Imperial University. Faculty of Engineering, Sapporo, Japan

PB 94902

Kurata, Muneakira

Buckling problems of rectangular composite plate, part I and II: Abstract. 1948. 2p Mi $1.25 Ph $1.25

1. Panels—Buckling—Japan 2. Hokkaido Imperial University. Faculty of Engineering, Sapporo, Japan

PB 89151

Leichtweiss, L.

Die beseitigung und vermeidung von geschiebeansammlungen unter der MAN-fischbauchwehrklappe. (Prevention of accumulations under the MAN (Mannesmann Röhren Werke) dam gates). n.d. 5p drawings (Text in German) Mi $1.25 Ph $1.25

1. Gates, Dam—Germany

PB 94455

Lundquist, Eugene E. and Kroll, W. D.

Extended tables of stiffness and carry-over factor for structural members under axial load. Feb 1944. 16p tables Mi $1.75 Ph $2.50

The tables of stiffness and carry-over factor that were presented in NACA Technical Note No. 652 have been extended to include the stiffness of a member with the far end subjected to a moment equal and opposite to the moment applied at the near end. These tables are of use in solving problems in the stability of structural members under axial load as well as in the usual applications of the Cross method of moment distribution when the effects of axial load in the members are considered. The values presented are for structural members in which the cross section and the axial load do not vary along the length of the member. The interval between successive values of the argument is small enough to make interpolation unnecessary in engineering calculations.

PB 94273

Moggio, Edwin M. and Brilmyer, Harold G.

Method for estimation of maximum stresses around a small rectangular cut-out in a sheet-stringer panel in shear. Apr 1944. 37p photo, drawings, graphs, table Mi $2.25 Ph $5.00

A method for the estimation of the maximum stresses around a small rectangular cut-out in a sheet-stringer panel loaded in pure shear is presented; this method is based on a simplified application of the shear-lag theory. Comparisons indicate that the experimental maximum stringer and shear stresses agree reasonably well with the predictions, provided that neither the length nor the width of the cut-out is greater than the half-width of the panel.

PB 94923

Moriguchi, Shigeichi

Apparent modulus of elasticity of a circular plate just after buckling: Abstract. n.d. 1p Mi $1.25 Ph $1.25

1. Panels, Curved—Elasticity—Japan 2. Tokyo. Imperial University. Faculty of Engineering

PB 94922

Moriguchi, Shigeichi

Buckling of circular plate with initial stress: Abstract. n.d. 6p diagr, graph Mi $1.25 Ph $1.25

1. Panels, Curved—Buckling—Japan 2. Tokyo. Imperial University. Faculty of Engineering

PB 94903

Naka, Takeo

Elastic stability of welded girders with intermediate stiffeners: Abstract. Nov 1946. 5p drawing, tables Mi $1.25 Ph $1.25

1. Girders—Stability—Japan 2. Tokyo. Imperial University. Faculty of Engineering

PB 94901

Nakamura, Sakutaro

Buckling load of the deep beam: Abstract. n.d. 3p tables Mi $1.25 Ph $1.25

1. Beams—Buckling—Japan

PB 94243

Ochiltree, David W.

Comparison of structural efficiencies of diagonal-tension webs and truss webs of 24S-T aluminum alloy. Jul 1945. 8p graphs Mi $1.25 Ph $1.25

A comparison is made of the structural efficiencies of truss webs of 24S-T aluminum alloy with previously published values of the structural efficiencies of diagonal-tension webs of 24S-T aluminum alloy on the basis of identical allowable stresses. It is concluded that the diagonal-tension beam (web and flanges) can usually be built to be a more efficient beam than the truss beam, even though over a small range the web of a Warren truss beam is slightly more efficient than the web of a diagonal-tension beam.

PB 94931

Okumura, Atsubumi

Some contributions to the theory of the long columns: Abstract. 1948. 12p drawings Mi $1.75 Ph $2.50

1. Beams—Stability—Japan 2. Waseda. Imperial University. Department of Mechanical Engineering

PB 94932

Okumura, Atsubumi

Stability of a shaft subjected to twisting couple: Abstract. 1948. 8p drawing Mi $1.25 Ph $1.25

1. Shafts—Stability—Japan 2. Waseda. Imperial University. Department of Mechanical Engineering

PB 94321

Peterson, James P.

Strain measurements and strength tests of 25-inch diagonal-tension beams with single uprights. Nov 1945. 22p photos, graphs, tables Mi $2.00 Ph $3.75

An investigation was made of a series of diagonal-tension beams to determine the accuracy of previously published design charts in predicting the stresses in single uprights. Strain measurements were made on the uprights and webs of the test beams to obtain the stress distribution in the beams and the ultimate stresses that could be developed in the beams. Failures of the beams occurred in both the uprights and the webs. The measured stresses were generally in agreement with the predicted stresses.

PB 81589

Pugsley, A. G. and Leggett, D. M. A.

Theory of thin plates under transverse pressure. Aug 1941. 15p diagrs, graphs, tables Available from British Information Services, 30 Rockefeller Plaza, New York 20, N. Y. $1.00

Part I.—The behaviour under pressure of thin plating of the proportions used in the metal covering of aircraft structures is examined and the importance of tensile actions in the plating as against bending actions emphasised. By treating the plating as primarily an elastic membrane, a simple means of estimating both tensile and bending stresses is developed and applied to a series of examples to illustrate the effects of various parameters, such as initial curvature of the plating. Part II.—This is a review of the theoretical work done prior to that described in Part I on the behaviour of long panels under transverse pressure. Where the displacements of the middle surface are small compared to the panel thickness, there is an exact and workable solution if both pairs of opposite edges are simply supported, or if one pair is simply supported and the other pair is clamped. If both pairs of edges are clamped, an exact theoretical solution exists, but for long panels it raises computational difficulties. For the cases where the short edges are simply supported, a method devised by W. D. Douglas for fabric gives a good representation of the transverse reaction over the two long edges. For the cases where the displacements of the middle surface are no longer small compared to the panel thickness little theoretical work has hitherto been done.

— 82073 —

PB 94458

Rafel, Horman

Effect of normal pressure on the critical compressive stress of curved sheet. Nov 1942. 10p photos, drawings, graphs Mi $1.25 Ph $1.25

1. Sheet metal—Stresses

PB 90964

Rank, Gebruder G.m.b.H., Munich, Ger.

Grain silos. 1939-1939. 49f (Text in German) Mi $2.50 Enl Pr $7.50

See PB 90964s for abstracts. 1p Mi $1.25 Ph $1.25

1. Grain elevators—Germany 2. Micro BIOS FD 1846/46, Frames 1-71

PB 94916

Sato, Shichiro

Study on the calculation for buckling of a column which does not obey to Hooke's law (In the case of the solid column): Abstract. Jul 1946. 10p drawings, graph Mi $1.25 Ph $1.25

1. Tubes—Buckling—Japan 2. Hiroshima Technical College, Hiroshima, Japan

PB 94409

Schuette, Evan H.

Charts for the minimum-weight design of 24S-T aluminum-alloy flat compression panels with longitudinal Z-section stiffeners. Aug 1945. 64p diagrs, drawing, graphs, tables Mi $3.00 Ph $8.75

Design charts are developed for 24S-T aluminum-alloy flat compression panels with longitudinal Z-section stiffeners. These charts make possible the design of the lightest panels of this type for a wide range of design requirements. Examples of the use of the charts are given and it is pointed out on the basis of these examples that, over a wide range of design conditions, the maintenance of buckle-free surfaces does not conflict with the achievement of high structural efficiency. The achievement of the maximum possible structural efficiency with 24S-T aluminum-alloy panels, however, requires closer stiffener spacings than those now in common use.

PB 94911

Shibuya, Iwao

Bending of a corrugated sheet and some problems about its results: Abstract. May 1942. 4p graphs Mi $1.25 Ph $1.25

1. Panels, Corrugated—Bending—Japan 2. Tohoku Imperial University. High Speed Mechanics Institute, Sendai, Japan

PB 94913

Shibuya, Iwao

Compressive failure and rigidities of a corrugated sheet with airplane skin: Abstract. Jun 1944. 2p Mi $1.25 Ph $1.25

1. Panels, Corrugated—Failure—Japan 2. Tohoku Imperial University. High Speed Mechanics Institute, Sendai, Japan

PB 94912

Shibuya, Iwao

Experiments on the buckling of a curved panel subjected to external pressure: Abstract. Jul 1942. 5p diagrs, graphs Mi $1.25 Ph $1.25
1. Panels, Curved—Buckling—Japan 2. Tohoku Imperial University. High Speed Mechanics Institute, Sendai, Japan

PB 94914

Shibuya, Iwao

One fact about the bending failure of an open profile: Abstract. Nov 1944. 4p graph Mi $1.25 Ph $1.25
1. Beams—Buckling—Japan 2. Tohoku Imperial University. High Speed Mechanics Institute, Sendai, Japan

PB 94910

Shibuya, Iwao and Seki, Hideo

Stability and strength of plate and stiffeners in thin walled construction: Abstract. Apr 1942. 4p graph Mi $1.25 Ph $1.25
1. Walls, Reinforced—Japan 2. Panels—Stability—Japan 3. Panels—Strength—Japan 4. Tohoku Imperial University. High Speed Mechanics Institute, Sendai, Japan

PB 94236

Stowell, Elbridge Z. and others.

Bending and shear stresses developed by the instantaneous arrest of the root of a cantilever beam rotating with constant angular velocity about a transverse axis through the root. Jun 1945. 24p diagrs, graphs Mi $2.00 Ph $3.75
A theoretical investigation was made of the behavior of a cantilever beam in rotational motion about a transverse axis through the root when the rotation of the root is suddenly stopped. Equations are given for determining the stresses, the deflections, and the accelerations that occur in the beam as a result of the arrest of motion. The equations for bending and shear stress reveal that, at a given percentage of the distance from root to tip and at a given tip velocity, the bending stresses for a particular mode are independent of the length of the beam and the shear stresses vary inversely with the length. When examined with respect to a given angular velocity instead of a given tip velocity, the equations reveal that the bending stress is proportional to the length of the beam; whereas the shear stress is independent of the length. Sufficient experimental verification of the theory has previously been given in connection with another problem of the same type.

PB 94272

Stowell, Elbridge Z. and others.

Bending and shear stresses developed by the instantaneous arrest of the root of a moving cantilever beam. Nov 1944. 30p photo, diagrs, drawings, graphs Mi $2.00 Ph $3.75
A theoretical and experimental investigation has been made of the behavior of a cantilever beam in transverse motion when its root is suddenly brought to rest. Equations are given for determining the stresses, the deflections, and the accelerations that arise in the beam as a result of the impact. The theoretical equations, which have been confirmed experimentally, reveal that, at a given percentage of the distance from root to tip, the bending stresses for a particular mode are independent of the length of the beam whereas the shear stresses vary inversely with the length.

PB 94945

Suhara, Jiro

Dynamic stability of column compressed by axial load increasing with time: Abstract. May 1948. 7p drawings Mi $1.25 Ph $1.25
1. Beams—Stability—Japan 2. Kyushu Imperial University. Faculty of Engineering, Fukuoka, Japan

PB 92867

Swida, W.

Procedure for determining deformation in structures in plastico-elastic condition. n.d. 4p graphs, table (Text in English and German) Mi $1.25 Ph $1.25
1. Deformation-- Measurements—Germany

PB 94895

Takahashi, Toshie

Generalization of buckling theory of long column: Abstract. Jan 1947. 3p Mi $1.25 Ph $1.25
1. Beams—Buckling—Japan 2. Waseda. Imperial University. Department of Mechanical Engineering

PB 94894

Takahashi, Toshie

On the buckling of circular disc of variable thickness: Abstract. Jul 1946. 4p drawing Mi $1.25 Ph $1.25
1. Tubes—Buckling—Japan 2. Waseda. Imperial University. Department of Mechanical Engineering

PB 94917

Tokugawa, Takesada

Approximate method of calculating the collapsing pressure of thin cylindrical, conical and spherical shells under uniform external pressure: Abstract. Mar 1944. 14p drawings, graphs, table Mi $1.75 Ph $2.50
1. Panels, Curved—Load—Japan

PB 94941

Tsuboi, Yoshitatsu and Wakabayashi, Minoru

Effect of the twisting resistance of the chord by the lateral buckling of a frame girder: Abstract. 1948. 20p diagrs, graphs, tables Mi $1.75 Ph $2.50
1. Girders—Buckling—Japan 2. Tokyo. Imperial University. Faculty of Engineering

—62073

PB 94907

Tsuboi, Yoshitatsu and Tazimi, Hiroshi

Theory of imperfect tension field: Abstract. Aug 1948. 9p graph Mi $1.25 Ph $1.25

1. Beams—Stress analysis—Japan 2. Tokyo. Imperial University. Faculty of Engineering

PB 94921

Uematsu, Tokio and Tahara, Mesao

Approximate calculation of the buckling of a circularly curved beam with a tie rod under uniformly distributed load: Abstract. Feb 1942. 4p graphs Mi $1.25 Ph $1.25

1. Beams, Curved—Buckling—Japan 2. Osaka. Imperial University. Faculty of Engineering

PB 94919

Washizu, Kyuichiro

Buckling of a circular plate with a concentric circular hole under uniform pressure and shear: Abstract. 1948. 6p diagr Mi $1.25 Ph $1.25

1. Beams, Curved—Buckling—Japan 2. Tokyo. Imperial University. Faculty of Engineering

PB 94918

Washizu, Kyuichiro and Mizuno, Tadashi

Note on the buckling of a column: Abstract. 1948. 8p graphs, tables Mi $1.25 Ph $1.25

1. Beams—Buckling—Japan 2. Tokyo. Imperial University. Faculty of Engineering

PB 94915

Yamamoto, Masayuki

Elastic buckling of curved-sided regular polygonal plate clamped at its boundary: Abstract. May 1947. 10p drawings, tables Mi $1.25 Ph $1.25

1. Panels—Buckling—Japan

PB 94897

Yasumi, Masaru

Study on the strength of short column with lacing bars: Abstract. Jan 1942. 4p drawings, graph Mi $1.25 Ph $1.25

1. Beams—Strength—Japan 2. Osaka. Imperial University. Faculty of Engineering

PB 94899

Yoshiki, Masao

Buckling strength of thin plate web girder under simple bending: Abstract. Jun 1942. 6p graph Mi $1.25 Ph $1.25

1. Girders—Buckling—Japan 2. Tokyo. Imperial University. Faculty of Engineering

PB 94935

Yoshimura, Yoshimaru

Behavior of a rectangular plain plate in compression after buckling. Nov 1947. 22p diagr, graphs Mi $2.00 Ph $3.75

1. Panels—Buckling—Japan 2. Tokyo. Imperial University. Institute of Technology

—62073

PB 94936

Yoshimura, Yoshimaru and Uemura, Masuji

Buckling of a slender rod. n.d. 9p diagr Mi $1.25 Ph $1.25

1. Rods—Buckling—Japan 2. Tokyo. Imperial University. Institute of Technology

PB 94933

Yoshimura, Yoshimaru

Buckling of circular cylindrical shells under combined load: Abstract. Oct 1944. 1p Mi $1.25 Ph $1.25

1. Tubes—Buckling—Japan 2. Tokyo. Imperial University. Institute of Technology

PB 94906

Yokowo, Yoshitsura

Buckling of the steel column compressed in its both ends with eccentricities of equal magnitude but opposite directions: Abstract. Sep 1943. 9p graphs, tables Mi $1.25 Ph $1.25

1. Panels—Buckling—Japan 2. Tokyo. Imperial University. Institute of Technology

PB 94934

Yoshimura, Yoshimaru

Theory of thin elastic shells with finite displacements. 1942. 16p Mi $1.75 Ph $2.50

1. Tubes—Stress analysis—Japan 2. Tokyo. Imperial University. Institute of Technology

PB 94898

Yoshimura, Yoshimuru and Mori, Yoshiatsu

Torsional buckling of a cylindrical shell under internal or external pressure: Abstract. Jul 1943. 2p Mi $1.25 Ph $1.25

1. Tubes—Buckling—Japan 2. Mori, Yoshiatsu 3. Tokyo. Imperial University. Aeronautical Research Institute

PB 94942

Ysuboi, Yoshikatsu and Wakabayashi, Minoru.

Stability of columns and arches composed of several members jointed elastically: Abstract. n.d. 18p diagrs, graphs, tables Mi $1.75 Ph $2.50

1. Beams—Stability—Japan 2. Tokyo. Imperial University. Faculty of Engineering

TEXTILES AND TEXTILE PRODUCTS

PB 90889

Halstenbach & Co., Wuppertal, Ger.

Textile machinery. 1939-1945. 1168f (Text in German) Mi $9.00 Enl Pr $152.50

See PB 90889s for abstracts. 4p Mi $1.25 Ph $1.25

1. Textile machines—Germany 2. Micro BIOS FD 1757/46, Frames incorrectly numbered 3. BIOS FR 289 LD, Frames incorrectly numbered

PB 94435

Rafel, Norman and Schuette, Evan H.

Material properties of two types of plastic-bonded glass cloth. Dec 1944. 18p photos, drawings, graphs Mi $1.75 Ph $2.50

I. Airplanes—Materials 2. Cloth, Glass

TRANSPORTATION EQUIPMENT

check NACA reports

Aeronautics

Aircraft

PB 94255

Abbott, Frank T., Jr. and Turner, Harold R., Jr.

Effects of roughness at high Reynolds numbers on the lift and drag characteristics of three thick airfoils. Aug 1944. 20p graphs Mi $1.75 Ph $2.50

In connection with studies of airfoils applicable to large high-speed aircraft, the effects of roughness on three 22-percent-thick airfoils were investigated. The tests were made over a range of Reynolds number from about 6 to 26×10^6 for the airfoils smooth and with roughness strips applied to the surfaces. The results indicated that for the roughened models the scale effect was generally favorable.

PB 94464

Ames, Milton B. and Lowry, John G.

Pressure distribution over an airfoil with a balanced split flap. Dec 1941. 20p drawings, graphs, tables Mi $1.75 Ph $2.50

A pressure-distribution investigation has been conducted in the NACA 4- by 6-foot vertical wind tunnel to determine the air loads on an airfoil with a 22.1-percent-chord balanced split flap. Pressures were measured on both the upper and the lower surfaces of the airfoil and the flap for several angles of attack and for several flap deflections. The data, presented as pressure diagrams and as graphs of the section coefficients for the airfoil-flap combination and for the flap alone, are applicable to the structural design of an airfoil with a balanced split flap. The results of previous tests of an airfoil with an external-airfoil flap, a Fowler flap, and slotted flaps of similar dimensions have been compared with the present results. It is believed that the results are applicable to airfoils of different thickness and to symmetrical or moderately cambered airfoils of similar contour. The results show that the normal-force coefficients for the various balanced split-flap settings are generally similar to the values for the external-airfoil flap, the Fowler flap, or the slotted flap.

—62073

PB 94482

Becker, John V.

High-speed wind-tunnel tests of the NACA 23012 and 23012-64 airfoils. Feb 1941. 14p photo, graphs, table Mi $1.75 Ph $2.50

Force tests of the NACA 23012 and 23012-64 airfoils of 24-inch chord were made in the 8-foot high-speed wind tunnel at Mach numbers ranging from 0.10 to 0.75. Supplementary tests of a 5-inch-chord NACA 23012 airfoil were made in the 24-inch high-speed tunnel to obtain pitching-moment data at higher loadings than could be attained with the 8-foot tunnel models. The results, which were corrected as far as possible for tunnel-wall effects, show the variation with Mach number of lift, drag, and pitching-moment coefficients at angles of attack from -4° to 6°. At positive lifts the NACA 23012-64 airfoil had slightly higher critical speeds than the NACA 23012 airfoil. At the higher angles of attack in the super-critical speed region, large increases in the magnitude of the pitching-moment coefficient occurred.

PB 94437

Benson, James M. and Freihofner, Anton

Landing characteristics of a model of a flying boat with the depth of step reduced to zero by means of a retractable planing flap. Feb 1944. 8p drawing, graphs Mi $1.25 Ph $1.25

A model of a flying boat was tested in the NACA tank No. 1 to determine the landing characteristics when the depth of step was reduced to zero by means of a retractable planing flap on the forebody. The model exhibited exceptionally stable landing characteristics over a wide range of the location of the center of gravity and at trims from about 5.5° (afterbody horizontal) to 12° (full stall). A high-speed landing at a trim of 5° or less was stable if the model was decelerated rapidly. With less rapid declerations the model would increase trim after landing at low trims and would take off again. Measurements of the water resistance indicated that the landing run required for the flying boat to decelerate from the landing speed to the hump speed would be decreased from 2100 feet to 1100 feet by fully retracting the step.

PB 94362

Benson, James M. and Havens, Robert F.

Tank tests of a flying-boat model equipped with several types of fairing designed to reduce the air drag of the main step. Apr 1945. 20p drawings, graphs, tables Mi $1.75 Ph $2.50

Tank tests were made of a flying-boat model having various types of fairing with and without ventilation ducts behind the main step to investigate the hydrodynamic characteristics of the model. All the types were designed to reduce significantly the air drag chargeable to the main step. The fairings

that were made merely by adding a filler block behind the main step had an adverse effect on the take-off and landing stability. Those fairings that offered the greater restriction to the flow of air into the region under the afterbody had the greater adverse effect. The configuration that combined the best stability with a good aerodynamic form consisted of a shallow step (depth, about 1 percent of the beam) and an adjoining ventilation aperture having an area about 7 percent of the square of the beam. With this form of step, the landing stability of the model compared favorably with that of the conventional model.

PB 94507

Boelter, L. M. K. and others.

An investigation of aircraft heaters. XVII. Experimental inquiry into steady state undirectional heat-meter corrections. Aug 1944. 28p Mi $2.00 Ph $3.75

Section I of this report discusses a correction which must be applied to the heat meter when it is being used at other temperatures than that at which it was calibrated, as the thermoelectric power of a thermocouple and the properties of the heat-meter material are a function of temperature. Predicted and experimental results for this temperature correction are presented. Section II of this report contains the results of the application of the two methods of correcting the heat-transfer rates for contact and heat-meter resistance to experimental data taken in the laboratory. From the resulting computations certain limitations on the use of the two methods were obtained.

PB 94509

Boelter, L. M. K. and others.

Investigation of aircraft heaters. XXII. Measured and predicted performance of a fluted-type exhaust gas and air heat exchanger. Apr 1945. 33p drawings, graphs, tables Mi $2.25 Ph $5.00

Data on the thermal performance and the static and total pressure drop characteristics of a fluted-type exhaust gas and air heat exchanger are presented. A shroud which produced parallel flow of the fluids was used in these tests. The weight rates of exhaust gas through the heat exchanger were varied from 1900 to 5200 pounds per hour and the weight rates of ventilating air were varied from 1500 to 4600 pounds per hour. The inlet temperature of the exhaust gas was maintained at approximately 1600° F. Total pressure traverses and static pressure measurements were recorded at several points upstream and downstream from the heater section in the ventilating air side of the unit under isothermal and non-isothermal conditions. Over-all isothermal and non-isothermal static pressure drops were measured across the exhaust gas and ventilating air sides of the experimental heater-duct system. The measured thermal outputs and pressure drops are compared with predicted magnitudes.

—82073

PB 94551

Davidson, Kenneth S. M. and Locke, F. W. S.

Some analyses of systematic experiments on the resistance and porpoising characteristics of flying-boat hulls. Sep 1943. 46p photos, drawings, graphs, tables Mi $2.50 Ph $6.25

This report discusses certain analyses and condensations of the test results obtained in the extensive series of systematic experiments on the porpoising characteristics of flying boats. The work is believed to simplify application of the test results to practical design problems and to aid in clarifying basic concepts regarding porpoising. The experiments were carried out according to strict system and considerable attention was given to presenting the results in a form which would provide as clear a visual impression as possible of the influence and relative importance of the different variables. The radiating chart of variables and the condensed summary charts of test results furnish the general background for the analyses here considered.

PB 94490

Davis, Wallace F.

Comparison of various methods for computing drag from wake surveys. Jan 1943. 20p drawing, graphs, tables Mi $1.75 Ph $2.50

The various equations for computing profile drag by the momentum method are examined, and the errors arising from complete or partial neglect of compressibility effects in the Jones equation (R. & M. No. 1688) and the Bicknell equation (NACA Rep. No. 667) are evaluated. The integrating method of Silverstein and Katzoff (Jour., Aero. Sciences, vol. 7, No. 7, May 1940) is shown to be accurate over a wide range of Mach number and wake shapes.

PB 94480

Donlan, C. J. and Letko, W.

Effect of cowling shape on the stability characteristics of an airplane. Sep 1942. 20p photos, drawings, graphs Mi $1.75 Ph $2.50

Three widely different nose shapes were tested on a fuselage alone and on a complete model in the NACA stability tunnel to investigate the effect of cowling shape on stability characteristics. The results are presented in the form of charts which show the variation in the aerodynamic characteristics with the three nose shapes for the propeller-removed condition over a wide range of angles of attack and yaw. The results of the investigation indicated that large changes in the cowling shape produced relatively small changes in the aerodynamic characteristics. The effects may be appreciable, however, in the case of an airplane that has marginal stability.

PB 9292

Fine, M. and Williams, D.

Effect of end constraint on thin-walled cylinders subject to torque. May 1945. 17p diagr,

graphs Available from British Information Services, 30 Rockefeller Plaza, New York 20, New York $1.00

A general method of finding the effect of end constraint on stiffened thin-walled cylinders subject to torque is given. For box sections similar to those used in two spar stressed-skin wings simplifying approximations to reduce the arithmetic may be made.

PB 92605

Fiszdon, W. and others.

Effect on damping in different parts of an aircraft structure on forced vibrations as studied on simplified systems. Apr 1945. 25p diagrs, graphs, tables Available from British Information Services, 30 Rockefeller Plaza, New York 20, New York $1.90

From theoretical calculations made on simple systems—2-mass, 3-mass, and uniform beams with mass representing the engine at one end—and from experiments carried out on airframe models it appears that an increase of damping in the airframe is an effective way of reducing resonance amplitudes. Curves are given which indicate the amount of reduction to be expected from various degrees of damping. A useful conclusion is that the usual amount of damping inherent in airframes is such that any artificial increase would be very profitable in reducing vibration amplitudes. An increase of damping in the engine mounting also considerably reduces the amplitudes, especially at resonance modes involving largely deflections of the engine mounting. The increase of amplitude between resonances due to the increased transmissibility is usually small. The final conclusion is that from the vibration standpoint we should aim at a very flexible engine mounting with plenty of damping in both engine suspension and in the airframe. It is shown how for known exciting forces by the use of the admittance method and influence coefficients, which can be determined during the admittance measurements of a given system, the amplitudes at any point of a given system due to known exciting forces can be easily determined at any frequency.

PB 92580

Fiszdon, W. and others.

20 mm. cannon blast effects on stressed-skin structures. Jul 1943. 61p photos, diagrs, graphs, tables Available from British Information Services, 30 Rockefeller Plaza, New York 20, New York $3.40

This report describes an investigation undertaken with the object of finding the best way of adequately reinforcing a stressed-skin structure such as a fuselage against the blast effects from turret mounted 20 mm. cannon guns, and has special reference to the Lancaster fuselage. An account is given of the tests that were carried out and these are related to the underlying theoretical aspects of the matter. At the end of the report alternative methods of carrying out the necessary reinforcement of the structure are given for the use of designers.

PB 91920

Germany. Reichsluftfahrtministerium. Technisches Amt.

He 219 A-0, Flugzeug-Handbuch. Apr 1944. 95p photos, drawings (Text in German) Mi $4.25 Ph $12.50

I. Aircraft—Handbooks—Germany

PB 94469

Gilruth, R. R.

Requirements for satisfactory flying qualities of airplanes. Apr 1941. 27p Mi $2.00 Ph $3.75

I. Airplanes—Design

PB 92917

Gt. Brit. Ministry of Supply

Aircraft material specification, approval procedure for proprietary materials and processes. Jan 1948. 4p Available from British Information Services, 30 Rockefeller Plaza, New York 20, New York $.35

I. Aircraft—Materials—Specification—Gt. Brit.

PB 92499

Gt. Brit. Ministry of Supply.

Aircraft material specifications. DTD series. (Index). Feb 1948. 15p Available from British Information Services, 30 Rockefeller Plaza, New York 20, New York $.25

I. Materials, Aircraft—Gt. Brit.

PB 94304

Gustafson, F. B. and Gessow, Alfred

Effect of rotor-tip speed on helicopter hovering performance and maximum forward speed. Mar 1946. 39p graphs, table Mi $2.00 Ph $3.75

A specific study was made of several sample helicopters in order to evaluate the effect of rotor-tip speed on hovering performance and limiting forward speed. The purpose of this study was to determine whether hovering performance could be increased by the use of lower tip speeds without undue sacrifice in maximum forward speed. The types investigated were: (1) a helicopter typical of current conventional design, (2) a similar machine of lower solidity than the first, and (3) a relatively high-powered, cleanly designed "high-speed" helicopter. The effects of blade twist and of blade-section stalling angle of attack on limiting forward speed are discussed. In each case the limiting forward speed was determined as the speed at which the tip of the retreating blade reached the stalling angle. Limiting angles of attack of 12° and 16° were investigated. A study of the "typical" helicopter indicated that improved hovering performance could be obtained with no loss in maximum speed by the use of lower operating tip speeds at the maximum power output of the engine. This reduction in tip speed and the resulting

reduction in limiting forward speed did not cause a corresponding reduction in the maximum forward speed of the helicopter, inasmuch as the operating tip speed before reduction was higher than that necessary to prevent tip stall at the maximum forward speed as fixed by the engine power available. The improvement in hovering performance is relatively small, however, unless advantage is taken of blade twist and of airfoil sections having high stalling angles. A study of the "low-solidity" helicopter revealed that, although higher rotor-tip speeds than for the typical helicopter are required (for a given limiting forward speed) because of the decrease in solidity, improved hovering performance could be obtained by employing lower tip speeds than are now in use. For either the typical or the low-solidity helicopter, after the tip speed has been reduced to the point where tip stalling will occur at maximum forward speed, some further improvement in hovering performance may be obtained by using still lower tip speeds. If a single engine-to-rotor gear ratio is used, however, the reduction in maximum forward speed due to tip stall is extremely rapid. The impossibility of obtaining hovering performance reasonably near the optimum together with relatively high forward speeds with a single gear ratio is illustrated by the "high-speed" helicopter. A gear shift that enables full power to be drawn at low tip speeds in hovering flight and at high tip speeds in maximum-forward-speed flight appears to be mandatory for obtaining both high speeds and near-optimum hovering performance.

PB 94254

Harmon, S. M.

Determination of the effect of horizontal-tail flexibility on longitudinal control characteristics. Feb 1945. 44p drawings, graphs, tables Mi $2.50 Ph $6.25

An iteration method is given for determining the longitudinal control characteristics of a flexible horizontal tail. The method permits factors such as the actual span-wise variation of elasticity and the aerodynamic induction effects due to three-dimensional flow to be accounted for to any degree of accuracy appropriate to a particular case. An analysis is included of the effects of horizontal-tail flexibility on the tail effectiveness, the hinge-moment characteristics, and the control-force gradients in a dive recovery for tow modern fighter airplanes. The effects of variations in speed, altitude, elevator stiffness, and center-of-gravity movements are considered. The results of these calculations for speeds below that at which critical compressibility effects occur indicate for the two airplanes significant effects due to the tail flexibility. It appears that the location of the flexural axis of the stabilizer too far behind the aerodynamic center of the tail may cause excessive control forces in a dive recovery at high speeds.

—62073

PB 81488

Hartshorne, T. G. and Twohig, T. J. comp.

Combined index to the technical reports of the Aeronautical Research Committee, 1919-20 to 1928-29. Aug 1939. 216p Available from British Information Services, 30 Rockefeller Plaza, New York 20, N. Y. $3.65

1. Aeronautics—Indexes—Gt. Brit.

PB 94488

Heaslet, Max A. and Pardee, Otway O'M.

Critical mach numbers of thin airfoil sections with plain flaps. Apr 1946. 25p drawing, graphs Mi $2.00 Ph $3.75

The critical Mach number, as a function of lift coefficient, is determined for certain thin and moderately thick NACA low-drag airfoils. The results, which are given graphically, include calculations on the same airfoil sections with plain flaps for small flap deflections. Curves are presented indicating optimum critical conditions for the airfoils with flaps and are in a form so that they may be compared with corresponding results for zero flap deflections. The calculations indicate that, through the use of plain flaps, an increase may be realized in the lift-coefficient range for which the critical Mach number is in the region of high values characteristic of low-drag airfoils.

PB 94487

Heaslet, Max A.

Theoretical investigation of methods for computing drag from wake surveys at high subsonic speeds. Jun 1945. 28p drawing, graphs, tables Mi $2.00 Ph $3.75

1. Airfoils—Drag

PB 92945

Hilton, W. F.

Subsonic and supersonic tests on a 7 1/2 per cent bi-convex aerofoil. May 1944. 10p graphs, tables Available from British Information Services, 30 Rockefeller Plaza, New York 20, New York $.70

The aerofoil was tested at Mach numbers ranging from 0.4 to 0.875, and at 1.25 and 1.46, the Reynolds number of the tests being between 0.4 and 0.88 million and the incidence range from -4 deg. to 4 deg. The subsonic C_{D_0} of 0.01 is low for the type of section, but increases rapidly with incidence; the moment results also indicate a change of flow pattern at incidences greater than 1 1/2 deg., which causes a change in sign of the moment curve slope. The slope of the lift curve is reduced in this range of incidence. The supersonic lifts agree with Ackeret's theory, and the moments with Busemann's theory, but the drags are rather higher than theory would suggest, due to the neglect of skin friction. Two low-speed lift curves up to

stalling incidence have been plotted, to give an estimate of $C_{L\ max}$, although this may be somewhat in error due to the low Reynolds number.

PB 93647

Hollifield, Robert C.
Final development status of kit container, fighter pilot, back type, survival. Jul 1948. 13p photos Mi $1.75 Ph $2.50
1. Kits, Aircraft—Survival

PB 94489

Hood, Manley J. and Allen, H. Julian
Problem of longitudinal stability and control at high speeds. Nov 1943. 14p graphs Mi $1.75 Ph $2.50
The difficulty in pulling out of high-speed dives, experienced with some airplanes, is shown to be due, primarily, to the effect of compressibility on the lift of the wing. As the Mach number is increased above the critical for the wing, there is a marked decrease in the lift-curve slope and in the downwash at the tail plane, and also a shift in the angle of attack for zero lift. These changes bring about an increase in the static longitudinal stability and alter the trim. Frequently the change in trim is such as to promote a diving tendency which, because of the increased stability, cannot be overcome by use of the normal elevator control. Means indicated for providing sufficiently powerful longitudinal control to overcome the trim and stability changes include auxiliary flaps and controllable stabilizer. It is also shown that, at least in some instances, it is possible to modify the aerodynamic characteristics of the airplane so that recovery from high-speed dives can be effected with the normal controls.

PB 92573

Jones, R. and Brown, A. F.
Drag and transition experiments on two Joukowski aerofoils in the compressed air tunnel. Jun 1941. 12p graphs, tables Available from British Information Services, 30 Rockefeller Plaza, New York 20, New York $.70
The experiments were carried out to provide data for analysing the drag of aerofoils. They consisted of drag measurements on two symmetrical Joukowski aerofoils 12.7 and 23.6 per cent. thick with and without wires placed spanwise on both surfaces at different distances from the leading edge. The momentum method was used throughout. The wires were used to determine the position of transition from laminar to turbulent flow. Observations of the normal pressure over the surface were also taken and though the data obtained in this part of the work were not sufficient to obtain more than a rough estimate of form drag, they provided an adequate basis for the application of theoretical methods to the determination of profile drag and skin friction drag (and hence the form drag) by solving the skin friction equations. The theoretical curves when used in conjunction with the observed profile drag of the wings, give a curve of transition position against R which is in good agreement with that obtained by the "wires" method at values of R beyond 3×10^6. Further, the "form drag" against R curves obtained from these transition curves, give form drag coefficients which are consistent with the estimates obtained from purely experimental methods. Form drag appears to be approximately independent of R and proportional to wing thickness.

PB 92582

Jones, W. P.
Note on lifting plane theory with special reference to Falkner's approximate method and a proposed electrical device for measuring downwash distributions. May 1946. 6p diagrs, graph Available from British Information Services, 30 Rockefeller Plaza, New York 20, New York $.35
The calculation of the downwash due to any distribution of doublets or vorticity over a wing and its wake is briefly considered, and the accuracy of Falkner's method is investigated. It is shown that, for a rectangular wing of aspect ratio 6, Falkner's approximate downwash distributions corresponding to certain simple doublet distributions agree reasonably well with the results of exact lifting plane theory for points along the mid-chord axis of the wing up to about 0.8 span. The replacement of Falkner's simplified vortex system by an equivalent electrical network is suggested.

PB 81517

Jones, W. Prichard
Theoretical air-load and derivative coefficients for rectangular wings. Feb 1943. 49p graphs, tables Available from British Information Services, 30 Rockefeller Plaza, New York 20, N. Y. $2.75
An approximate method for the calculation of derivatives for oscillating rectangular wings of thin section is developed. It is based on lifting surface theory with certain simplifying assumptions suggested in an earlier report. The method should lead to more accurate results than Cicala's theory, which is based on lifting line theory. In the limiting case of steady motion, when the frequency parameter $\omega \to 0$, better agreement is obtained with experimental values of $dC_L/d_\alpha C$ by this present method than by lifting line theory. Recent measurements of the pitching damping derivative of a rigid aerofoil made in the Compressed-Air Tunnel show very little variation with Reynolds number R, when $R > 10^6$, and they agree well with the values predicted by the present theory. The possibility of applying the present method to the calculation of derivatives for tapered and swept back wings in oscillatory motion is to be considered.

PB 81515

Jones, W. Prichard
Theoretical determination of the pressure distribution on a finite wing in steady motion. May 1943. 130 diagrs, tables Available from

British Information Services, 30 Rockefeller Plaza, New York 20, N. Y. $.90

A general method for the determination of the pressure distribution of a finite wing of any plan from in steady motion is outlined. It is assumed that the vorticity (or doublet) distribution over the wing is made up of simple constituent vorticity distributions which are combined linearly to make the corresponding induced velocity distribution satisfy the tangential flow condition. The double integral expression for the normal induced velocity due to any vorticity distribution is reduced to a single integral which can be evaluated to any desired accuracy. When the induced velocities corresponding to the simple vorticity distributions are known, the required total vorticity distribution can be obtained by combining linearly the simple distributions to satisfy the tangential flow condition at a number of points on the wing. The problem is then reduced to one of solving a large number of equations. An approximate method which simplifies the numerical work considerably is also suggested. This gives greater accuracy than Glauert's lifting line theory, and, for non-sweptback wings of normal aspect ratio, it gives good agreement with the experimental evidence available. The methods of this paper can be generalised for calculations of the aerodynamic forces acting on wings in non-uniform motion.

PB 90908

Junkers Flugzeug- und Motorenwerke A. G., Dessau, Ger.

Aircraft construction practice. 1941. 152f (Text in German) Mi $6.00 Enl Pr $21.25

See PB 90908s for abstracts. 2p. Mi $1.25 Ph $1.25

1. Airplanes—Construction—Germany 2. Micro BIOS FD 1771/47, Frames 3-156

PB 93964

Kay, W. and Micklethwaite, F.

Stressing of large rectangular cut-outs in fuselages-strain-gauge analysis of York. Mar 1945. 26p diagrs, drawings, graphs Available from British Information Services, 30 Rockefeller Plaza, New York 20, New York. $1.45

A general analysis is made of the stresses occurring near a large cut-out in the side of a monocoque fuselage. Application of the theory gives approximate agreement with a limited number of strain-gauge readings available from York fuselage tests. Certain features of the behavior of the cut-out are confirmed by the results of tests on a model fuselage. General principles for the design of large cut-outs are indicated for nearly rectangular fuselages with well-defined coaming members. Further experimental evidence is required for other types of fuselage and for ill-defined coaming members.

—62073

PB 94293

Kleckner, Harold F.

Use of variable-ratio geared tabs to improve stick-force characteristics in turning flight. Oct 1945. 11p drawing, graphs, table. Mi $1.75 Ph $2.50

In flight tests of an experimental elevator with geared tabs, a cockpit control over the tab gear ratio was found to be satisfactory for adjusting the stick force per g in turning flight according to the pilot's preference. This type of control appears to have application for increasing the center-of-gravity range for satisfactory stick forces in turning flight. Sample calculations made for a fighter airplane indicate that satisfactory stick forces in turning flight can be obtained for any center-of-gravity position at which the elevator control meets other requirements.

PB 92625

Knowler, A. E. and Pruden, F. W.

Effect of brake flaps on an aerofoil at high speeds, Part I, measurements on the effect of brake flaps on an aerofoil at high speeds. Part II. Further wind-tunnel tests of brake flaps at high speeds. Jun 1942. 25p photos, drawings, graphs, tables Available from British Information Services, 30 Rockefeller Plaza, New York 20, New York $1.45

Measurements were made on the effect of brake flaps of various shapes and sizes on the lift, drag and pitching moment of an aerofoil. Generally it was found that from an aerodynamic point of view the best position for the flaps was at the trailing edge.

PB 94269

Liddell, Robert B. and Lockwood, Vernard E.

Wind-tunnel investigation of rounded horns and of guards on a horizontal tail surface. Oct 1944. 79p photos, graphs, drawings, tables Mi $3.50 Ph $10.00

An investigation was made to determine the aerodynamic effects of horn balances with various plan forms and of guards on a horizontal tail surface. The results indicate that rounding the adjacent horn and stabilizer edges caused negligible changes in the aerodynamic characteristics, except for the changes resulting from the decrease in the area moment of the horn. The use of guards mounted between the stabilizer and horn was found to increase the slope of the lift curves with angle of attack or with elevator deflection. The negative slopes of the curves of hinge moment against angle of attack and elevator deflection increased as the guard area was increased.

PB 92615

Lighthill, M. J.

Theoretical discussion of wings with leading-edge suction. May 1945. 11p Available from British Information Services, 30 Rockefeller Plaza, New York 20, New York $.70

I. Wings, Slotted

PB 94553

Locke, F. W. S.

General main-spray tests of flying-boat models in the displacement range. Apr 1945. 19p drawings, graphs Mi $1.75 Ph $2.50

This report presents a method for showing, by means of three curves, the locations of the points of tangency to the envelope of the main-spray blisters generated by flying-boat-hull models, as obtained from "general" tests in the speed range up through the hump (displacement-speed range). For a given model there is one curve each for the longitudinal position, the lateral position, and the vertical position of the point of tangency of the main-spray blister with the crest of the envelope; each curve represents all the data taken at all combinations of load and speed, in free-to-trim tests with a given position of the center of gravity. The relationships used are

$$C_x/C_\Delta^{1/3} = \phi_1 (C_V^2/C_\Delta^{1/3}) \text{ for longitudinal position} \quad (1)$$

$$C_y/C_\Delta^{1/3} = \phi_2 (C_V^2/C_\Delta^{1/3}) \text{ for lateral position} \quad (2)$$

$$C_z/C_\Delta = \phi_3 (C_V^2/C_\Delta^{1/3}) \text{ for vertical position} \quad (3)$$

in which the left-hand side represents the position in terms of the size of the hull and the right-hand side is a form of the Froude number. These three relationships are tested by applying them to the data for seven different models and are found to be reasonably satisfactory for all of them. The method should be useful for extrapolating the limited data ordinarily obtained from specific tests, for reducing the number of tests required to obtain adequate indications from general tests, and for comparisons between hull forms of the same general type. It is intended to supplement, rather than to supplant, the method involving two-view drawings of the spray, previously developed and described in reference 1—a method which provides a very vivid presentation of the results and is not easily supplanted.

PB 94552

Locke, F. W. S. and Bott, Helen L.

Method for making quantitative studies of the main spray characteristics of flying-boat hull models. Nov 1943. 38p photos, drawings, graphs Mi $2.25 Ph $5.00

A method and apparatus for making quantitative tests of the spray characteristics of flying-boat-hull models has been developed. Three-view photographs are taken on one negative, with the aid of mirrors; measurements are made from the photographs, and the results are presented in the form of charts which show the side view and the front view of the envelope curves of the principal features of the spray as functions of speed and load. The spray envelopes are located on these charts with reference to the model (*not* the undisturbed water surface), so that, by superimposing a transparent drawing of a proposed complete flying boat, interferences may be detected at a glance. An example of the latter procedure is shown in figure 5. Here data are given for the lower speed range only, this range being of more importance, in most cases, than the planing range. The method is applied, in this report, to three related models of flying-boat hulls which differed in one major characteristic of shape; namely, the general overall dead rise. Spray and roach characteristics in smooth water are considered. The models had no tail extensions and were not self-propelled. From the results obtained, it is concluded that larger dead-rise angles than are ordinarily employed (about 20° at the main step) produce very slightly lower spray blisters in the lower speed range and that smaller dead-rise angles are quite undersirable, especially at high speeds; it is concluded, also, that the roach at the stern (which may interfere with the tail cone at speeds just prior to the hump) becomes lower as the dead rise is increased. In an appendix a review is made of the problem of scale effect in spray measurements on models. It is concluded that, apart from questions regarding the effect of propeller slipstream, model and flying boat may be expected to have strikingly similar spray under corresponding conditions.

PB 94549

Locke, F. W. S.

Some yawing tests of A 1/30-scale model of the hull of the XPB2M-1 flying boat. Jul 1943. 20p photo, drawings, graphs Mi $1.75 Ph $2.50

The results obtained from yawing tests of a 1/30-scale model of the complete hull of the XPB2M-1 (Stevens Model No. 404) are shown to be in substantial agreement with preliminary full-scale flight tests on the flying boat. The model tests cover the entire range of speeds up to get-away, on the basis of the designed gross weight of the flying boat (140,000 lb). Reports of preliminary flight tests of the XPB2M-1 flying boat indicated that there was a definite tendency toward directional instability in the vicinity of the hump. The model tests show that the hull is unstable at speeds up to and just past the hump. It was found that within the range $C_V = 2.0\text{-}2.5$ the curves of yawing moment are discontinuous at small yaw angles, and this has been associated with the difficulty found in the preliminary flight tests.

PB 94451

Lowry, John G. and Liddell, Robert B.

Wind-tunnel investigation of a tapered wing with a plug-type spoiler-slot aileron and full-span slotted flaps. Jul 1942. 28p drawings, graphs Mi $2.00 Ph $3.75

An investigation was made in the 7- by 10-foot wind tunnel of the Langley Memorial Aeronautical Laboratory of several arrangements of a plug-type spoiler-slot aileron on a tapered wing model of a typical fighter airplane having a full-span slotted flap. The plug-type aileron is essentially a tapered plug that fits into a slot through the wing to conform to the original external wing contour when in the natural position. When the aileron is deflected, the plug projects from the upper surface of the wing as a spoiler and, at the same time, makes a slot through the wing behind the spoiler. The static rolling-, yawing-, and hinge-moment coefficients were determined and are presented for several angles of attack and flap deflections. Estimates of the rolling effectiveness and the stick forces for a fighter airplane are also given. The results indicate that a plug-type spoiler-slot aileron will provide satisfactory lateral control on tapered-wing airplanes with full-span slotted flaps. Pivoting the top plate of the plug and providing a simple linkage for deflecting the plate relative to the plug offers a powerful means of adjusting the stick force.

PB 94481

Luoma, Arvo A.

Drag measurements of a protruding 0.50-caliber machine gun. Jul 1941. 12p drawings, graphs Mi $1.75 Ph $2.50

Drag and cross-wind force measurements of a Browning 0.50-caliber M2 machine gun at air speeds from 90 to more than 400 miles per hour were made in the NACA 8-foot high-speed wind tunnel. The machine gun protruded through the top of the tunnel wall into the air stream and tests at several fore-and-aft angles were made by pivoting the gun in a plane parallel to the air flow. Sufficient data were taken to permit the calculations of the power required to turn the gun against the aerodynamic forces and to determine the horsepower absorbed in air drag by the protruding gun for different speeds up to 400 miles per hour. For the speed range covered in the tests, the drag and the cross-wind force coefficients for the machine gun were only slightly affected by Reynolds number and Mach number. The drag for equal fore-and-aft angles was nearly the same, the drag being slightly less when the gun pointed downstream. As an indication of the magnitude of the drag forces to be expected at high speeds, calculations based on data obtained show that a protruding machine gun when mounted vertical to the air flow on an airplane flying 350 miles per hour at sea level conditions, for example, would have a drag of 83 pounds and would absorb 78 horsepower. Additional tests were made to study the effects of the slots in the cooling jacket of the machine gun. The data obtained indicate that in actual installations of machine guns on airplanes some gain (that is, less drag) due to closing the jacket slots is to be expected at low altitudes and for speeds up to about 360 miles per hour, but at high altitudes no gain can be expected.

PB 92577

Lyon, H. M. and Adamson, J. E.

Effect of ground interference on the trim of a low wing monoplane. Oct 1938. 34p graphs, tables Available from British Information Services, 30 Rockefeller Plaza, New York 20, New York $1.30

In the landing of some low wing monoplanes it has been found difficult near the ground to apply sufficient elevator control to hold the tail down. It was proposed to investigate the effect of ground interference on the pitching moment of a typical model in the wind tunnel. Measurements were made of lift, drag and pitching moment with and without split flaps in the free tunnel and at three distances from a horizontal plate. In one case, close to the plate, the effect of lowering the tail plane was examined. The tail setting required for trim and the angle of downwash at the tail were obtained from the measurements. The theoretical effect of ground interference on angle of downwash at the tail and on lift, drag and pitching moment without tail, both with and without flaps, was calculated and compared with the experimental results. The angle of downwash at the tail decreases rapidly as the aeroplane approaches the ground and large negative tail settings are required for trim. The lift of the trimmed model increases and the stalling angle is reduced hear the ground. The drag decreases and the aeroplane becomes more stable. All these effects are more pronounced when flaps are used. The angles of downwash calculated on the assumption that the trailing vortices roll up at the wing are in fairly good agreement with experimental values. The calculated decrease in angle of incidence for the same lift coefficient is about 0.5° less than the measured decrease and the calculated reduction in drag coefficient near the ground is much less than the measured effect. This discrepany may be due to the use of a ground plate with an insufficiently thin boundary layer.

PB 81525

Lyon, H. M. and others.

Theoretical analysis of longitudinal dynamic stability in gliding flight. Jul 1942. 44p graphs, tables Available from British Information Services, 30 Rockefeller Plaza, New York 20, N. Y. $2.65

A summary is given of the theory of dynamic stability in gliding flight, including an approximate method of calculating the period and damping of the phugoid. The effects of weights and springs in the elevator circuit are examined and compared with qualitative evidence from flight tests. Stability at altitudes is also considered. It is shown that, with positive static stability, the low degree of phugoid damping on some modern aircraft cannot be attributed to low drag or to inadequate tail area for damping out the pitching motion, unless there is a large loss of tail-plane effectiveness on freeing the stick. It is more probably due to too small a static margin combined with friction in the

elevator circuit. A weight moment about the elevator hinge improves static stability, but with the assumptions made here, it does not appear to be as efficient dynamically as an equivalent change in static margin by an increase in tail effectiveness or a movement of the centre of gravity. A spring or inertialess weight moment improves static stability, but may have a very unfavourable effect on dynamic stability, particularly at high altitudes.

PB 94660

Ludwieg, H.

Improvement of the critical mach number of aerofoils by sweep-back. Jul 1946. 17p drawings, graphs Mi $1.75 Ph $2.50

1. Airfoils—Boundary layer 2. Mach numbers 3. Wings—Boundary layer

PB 90729

Luftfahrtgeratwerke Hakenfelde G.m.b.H., Berlin

Electric motors and equipment for aircraft. 1942 (?). 122f (Text in German) Mi $4.75 Enl Pr $16.25

See PB 90729s for abstracts. 1p Mi $1.25 Ph $1.25

1. Motors, Electric—Germany 2. Instruments, Aeronautical—Germany 3. Micro BIOS FD 1639/47, Frames 1-119

PB 92614

Mair, W. A. and Charnley, W. J.

Profile drag measurements on a Spitfire wing in flight at high speeds. Jun 1945. 16p drawings, graphs Available from British Information Services, 30 Rockefeller Plaza, New York 20, New York $1.00

Wake traverse measurements for the determination of profile drag were made in flight on a Spitfire wing at Mach numbers up to 0.89. On account of experimental difficulties and the large extent of the shock waves, it was not possible to determine the part of the drag due to direct shock wave loss, but the remainder of the drag had been determined approximately. Probable values of the shock wave drag and the extent of the shock waves are considered, and possible alternative methods of measuring profile drag in flight at high speeds are discussed.

PB 94492

Martinelli, R. C. and others.

Investigation of aircraft heaters. VI. Heat transfer equations for the single pass longitudinal exchanger. Dec 1942. 13p drawings, graphs Mi $1.75 Ph $2.50

Presented herein is an analysis of parallel flow and contra-flow single pass heat exchangers, together with charts which allow the direct evaluation of the thermal performance of such units without recourse to trial-and-error technicues. The use of the equations and charts is illustrated by several examples. The analysis indicates that one of the frequently stated restrictions on the use of the logarithmic mean temperature difference—that is, that the exchanger must be perfectly insulated—is not always necessary.

PB 94493

Martinelli, R. C. and others.

Investigation of aircraft heaters. V. Theory and use of heat meters for the measurement of rates of heat transfer which are independent of time. Dec 1942. 14p diagrs, graphs Mi $1.75 Ph $2.50

A meter which will measure the heat flowing through surfaces is described. Its operation is based on the measurement of the temperature decrease through a fixed thermal resistance. Several methods of application of the meter are noted and the corresponding necessary corrections are presented. In this report only the case of heat flow independent of time has been discussed. The meter is calibrated and a typical unit will generate approximately 1 millivolt for each 18 Btu/hr ft^2 flowing. Special applications of the meter which are pertinent to the airplane are the heat flow through the wings, cabin walls, and clothing of personnel.

PB 92648

Micklethwaite, F.

Stressing of a rigid-jointed framework. Strain gauge analysis of the auster fuselage. Jun 1945. 21p drawings, graphs, tables Available from British Information Services, 30 Rockefeller Plaza, New York 20, New York $1.15

Available methods of analysis of a rigid-jointed framework are compared with experimental results from strain gauge measdrements made during a strength test on an Auster III fuselage. The ordinary method of stressing by taking a standard initial eccentricity on the compression members and an equivalent pin-jointed length of 80 per cent. of the true length is extremely pessimistic, giving a failing load of 61 per cent. of the true failing load. The calculated value of this percentage is raised to 73 per cent. if the equivalent pin-jointed length of the critical strut is determined by assuming that the remote ends of the members supporting the strut are pin-jointed. By making a complete moment distribution analysis of the plane side-frames and neglecting the cross bracing an ultimate load of 90 per cent. of the actual failing load is predicted.

PB 94477

Miller, Mason F.

Wind-tunnel vibration tests of a four-blade single-rotating pusher propeller. Jun 1943. 24p drawings, graphs Mi $2.00 Ph $3.75

Vibration tests of a four-blade single-rotating propeller operating in a simulated pusher condition were performed because the combination of wake and downwash behind a wing was expected to provide serious excitation for reactionless vibrations of propellers with four or more blades. The tests were conducted in the LMAL 16-foot high-speed tunnel with a wing mounted at thrust-axis level ahead

of the propeller; the blade sections at three-fourths the propeller radius operated at approximately twice their chards behind the trailing edge of the tapered wing at their closest position. Measurements of propeller vibratory stress were made for various airspeeds, engine speeds, and engine powers. The wake behind the wing supplied serious excitation for an edgewise reactionless vibration of the propeller at a frequency of twice the propeller speed; the resulting vibratory stress increased considerably with airspeed but was practically independent of engine brake mean effective pressure for constant airspeeds. The effect of downwash upon the reactionless vibration was very small; changing the angle of attack of the wing from 0° to 3.9° produced no detectable increase of downwash excitation and little increase of wake excitation. A simulated full-span split flap on the lower surface of the wing greatly increased the vibratory stress and prohibited the running of tests over the stress peak at airspeeds higher than 140 miles per hour. No flatwise reactionless vibration was detected, probably because the airspeeds were low for most of the critical engine speeds and because the harmonic components of wake excitation were small.

PB 92610

Molyneux, W. G. and Broadbent, E. G.

Ground resonance testing of aircraft. Jul 1946. 28p drawings, graphs Available from British Information Services, 30 Rockefeller Plaza, New York 20, New York $1.60

This report describes the latest methods in use at the Royal Aircraft Establishment for aircraft resonance tests. A list of the equipment required and a more detailed description of the electrical recording apparatus is given in Appendices.

PB 94478

Naiman, Irven

Method of calculating performance of dual-rotating propellers from airfoil characteristics. May 1943. 42p diagrs, tables Mi $2.50 Ph $6.25

A method is developed for calculating the performance of a dual-rotating propeller from the section characteristics of the blade elements. The method is applied to an eight-blade dual-rotating propeller and the computed results are compared with low-speed wind-tunnel tests of the same propeller in both the tractor and the pusher positions. The computations are found to agree within the experimental accuracy of the measurements. A detailed step-by-step procedure for the computations is given in an appendix.

PB 94228

Nielsen, Jack N. and Sweberg, Harold H.

Note on compressibility effects on downwash at the tail at subcritical speeds. Mar 1945. 16p graphs Mi $1.75 Ph $2.50

Calculations have been made to show the magnitude of the compressibility effects on the downwash at the tail at subcritical speeds. Experimental results of tests of two airplane models are included to give some verification of the theory. The calculations showed that the effects of compressibility on the span load distribution along the wing and on the downwash angle at the tail are small for constant values of the lift coefficient. The experimental results confirmed these calculations.

PB 81520

Pankhurst, R. C.

Equations to given aerofoil sections: Clark Y and RAF 6. Jun 1944. 6p diagrs, tables Available from British Information Services, 30 Rockefeller Plaza, New York 20, N. Y. $.50

Equations have been fitted to a "Clark Y" section and to a RAF 6 section in order to facilitate theoretical calculations of pressure distributions.

PB 81521

Pearcey, H. H.

Drag measurements on NACA 2218 section at compressibility speeds for comparison with flight tests and theory. Apr 1943. 9p photos, graphs Available from British Information Services, 30 Rockefeller Plaza, New York 20, N. Y. $.70

Values of profile drag of an aerofoil of NACA 2218 section measured in the National Physical Laboratory Rectangular High-speed Tunnel are compared with values obtained in flight tests on a wing of the same section. Below the theoretical critical speed ($M=0.625$, $C_L=0.1$) flight tests give a slight rise in drag, the values corresponding to a theoretical mean transition position between the leading edge and 0.1c back. Model tests gave a rise of drag consistent with a movement of transition from 0.45c at $M=0.4$ to 0.35c at $M=0.625$ (theoretical critical Mach number). On fixing transition with wires near the leading edge the drag began to rise appreciably at $M=0.52$, this rise probably being due to shock effects on the wires. For both model and full scale the drag started to rise at an increasing rate immediately after the theoretical critical Mach number, but the rise was less rapid for the full scale than for the model.

PB 94463

Phillips, William H.

Effect of spring and gravity moments in the control system on the longitudinal stability of the Brewster XSBA-1 airplane. Apr 1942. 23p photos, drawings, graphs Mi $2.00 Ph $3.75

Calculations have been made to determine the effects of spring and gravity moments in the control system on the longitudinal-stability characteristics of the Brewster XSBA-1 airplane, and the computed results have been verified by flight tests. It has been found that the type of stick-force variation with airspeed in a given flight

condition may be changed within wide limits by use of weight or spring moments in the control system and that the stick forces required in maneuvers may be reduced by the use of weight moments. By the use of weight and spring moments in combination, both of these factors may be adjusted independently. Flight tests on the Brewster XSBA-1 airplane showed, however, that the maneuvering forces could not be reduced below a certain point without encountering an unstable condition in which the airplane diverged from straight flight into a dive with controls free. The use of a weight moment large enough to increase appreciably the moment of inertia of a control system was considered by the pilot to be undesirable.

PB 79402

Preston, J. H. and others.

Effect of drag of the ejection of air from backward-facing slots on a 16.2 per cent Griffith aerofoil. Jan 1946. 7p drawings, graphs Available from British Information Services, 30 Rockefeller Plaza, New York 20, N. Y. $.70

From considerations of momentum, one is led to expect that prevention of separation on a Griffith type aerofoil could be effected ecually well by blowing as by suction. Moreover in the practical application of boundary-layer control, the blowing system has definite advantages. At H. M Garner's suggestion it was decided to obtain some interim data on the 16.3 per cent. thick, 6-ft. chord Griffith wing, which, if promising, could be supplemented by tests on thicker Griffith type aerofoils. Drag measurements were for three conditions of wing surface and various values of $C_Q = Q$ per ft. run/U_o .c, for air ejected from two sizes of backward-facing slots (0.14 in. and 0.08 in.) located at the position of the discontinuities. The Reynolds number of the test was $R = 2.3 \times 10^6$ and the incidence was 0 deg. To prevent separation by blowing, about 2 1/2 times the air necessary to prevent separation by suction is required. When separation is prevented, no comparable drop in C_D occurs. In order to obtain the same C_D as was obtained when separation was just prevented by suction, about seven times as much air must be ejected. Hence, as regards quantity, the suction scheme is by far the better. On a power basis, the merits of the two systems are more difficult to assess, since theoretically a large proportion of the air ejected to prevent separation requires no power. From a purely aerodynamic point of view suction is to be preferred, as potential-flow conditions over the rear of the wing are closely attained. With blowing this is not so likely to be the case and considerable from drag may result.

PB 92623

Pringle, G. E.

Difference between the spinning of model and full-scale aircraft. May 1943. 21 drawings, graphs, tables Available from British Information Services, 30 Rockefeller Plaza, New York 20, New York $1.15

The empirical basis of present model standards was examined critically. To obtain quantitive information, the difference between model and full-scale recoveries was analysed on a statistical basis. Possible causes of excessive scatter were investigated by further model tests. Some possible causes of error in assessing full-scale behaviour by existing standards have been eliminated and the difference from model behaviour is presented numerically as a single parameter subject to statistical variation, i.e. the scale effect in units of yawing moment, in the wider sense defined in section 4. In special cases the admission of a more complex variation may be advisable; especially if the model is unduly sensitive to applied rolling moments, the corresponding constituent of the overall scale effect is separated from the rest and is allowed for independently in arriving at a safe standard. In such cases, model results are being interpreted cautiously until more definite full-scale evidence leads to an eventual revision of standards.

PB 92649

Pugsley, A. G. and Fairthorne, R. A.

Note on airworthiness statistics. May 1939. 6p graphs Available from British Information Services, 30 Rockefeller Plaza, New York 20, New York $.35

This report briefly discusses some general questions now arising in the analysis of statistical data such as are being collected on flying boat alighting and take-off accelerations. The relations between such loading data and aeroplane accident statistics are indicated. Attention is drawn to the ultimate value of general work on this question both from the safety and design standpoints.

PB 94339

Purser, Paul E. and McKinney, Elizabeth G.

Comparison of pitching moments produced by plain flaps and by spoilers and some aerodynamic characteristics of an NACA 23012 airfoil with various types of aileron. Apr 1945. 16p drawings, graphs Mi $1.75 Ph $2.50

An analysis and comparison has been made of the pitching-moment characteristics of airfoils with plain flaps and spoilers. Aerodynamic section characteristics of an NACA 23012 airfoil having a retracted slotted flap with a plain, a slot-lip, and a retractable aileron are also presented for a large range of aileron deflections. The analysis indicated that the pitching moments produced by spoilers were less positive than those produced by plain flaps of ecual effectiveness. The data from two isolated cases indicated that the pitching moments created by the spoiler increased less with Mach number than the pitching moments produced by the plain flap. The positive values of the pitching moments produced by both the plain flaps and the spoilers decreased as the devices were located nearer the airfoil leading edge.

PB 94479

Recant, I. G. and Wallace, A. R.

Effect of ground on characteristics of model of a low-wing airplane with full-span slotted flap with and without power. Sep 1942. 30p drawings, graphs Mi $2.00 Ph $3.75

Ground-effect tests were made in the LMAL 7- by 10-foot tunnel of a model of a low-wing, pursuit-type airplane equipped with a full-span 25-percent-chord slotted flap. The model was mounted at two heights above a flat plate that represented the ground and was tested with and without power. At each height and power condition, tests were made with two stabilizer and elevator settings. Tests were also made with the tail removed. Sufficient data were obtained to determine the elevator deflection required for trim and the downwash angles in the region of the tail at each lift coefficient. The downwash angles derived from the power-off test data for one height above the ground plate were compared with computed angles. It was found that the elevator deflection required for landing in a three-point attitude with the full-span slotted flap was considerably greater than that required with a partial-span split flap. The application of power reduced the required deflection. The presence of the ground reduced and downwash angle and the rate of change of downwash angle with angle of attack, either with or without power. Computed values of the downwash angle (if the effect of the windmilling propeller is neglected) were about 1 3/4° lower than those values derived from the test data. Computed values of elevator deflection required for trim would therefore be about 3° higher than the values obtained in the tests with the propeller windmilling.

PB 93953

Richards, E. J.

Theoretical critical mach numbers for NACA 16 series aerofoils. Jul 1945. 10p graphs, tables Available from British Information Services, 30 Rockefeller Plaza, New York 20, New York $.70

1. Mach number—Gt. Brit.

PB 92652

Richards, E. J. and others.

Wind-tunnel tests on a 30 cent. suction wing. Jul 1945. 24p diagrs, graphs, tables Available from British Information Services, 30 Rockefeller Plaza, New York 20, New York $1.30

The present paper describes tests carried out in the National Physical Laboratory 13 ft. x9 ft. Wind Tunnel at Reynolds numbers between 0.8 and 3 millions on such a 30 per cent. suction wing to determine whether the suction principle is satisfactory and to investigate the general characteristics of the wing.

PB 92858

Robinson, True W. and Holton, Howard F.

Galley equipment for B-29 airplanes. Jun 1948. 22p photos, drawings Mi $2.00 Ph $3.75

PB 92603

Sargent, R. F.

Tests on NACA 0012 with various thick trailing edges at high speeds. Nov 1942. 6p graphs, table Available from British Information Services, 30 Rockefeller Plaza, New York 20, New York $.45

The profile drag of a 2-in. chord model of NACA 0012 at 0 deg. with a normal trailing edge and with five thicker modifications of trailing edge is measured at a range of Mach numbers from 0.45 to 0.78. No regular variation of drag coefficient with trailing-edge thickness if found below the critical Mach number, except that all modified trailing edges exhibit higher drag than the unmodified ones. Above the critical Mach number the increase of drag is more systematic and may best be represented, for a given C_D, as a decrease in M of 0.025 for a change in trailing-edge radius from 0.1 per cent. of the chord.

PB 94452

Schuldenfrei, Marvin

Some notes on the determination of the stick-free neutral point from wind-tunnel data. Feb 1944. 20p graphs Mi $1.75 Ph $2.50

The effect on static longitudinal stability of freeing the elevator is shown to be similar to the effect of altering the slope of the tail lift curve by a factor that depends upon the aerodynamic characteristics of the horizontal tail surfaces. The stick-free neutral point may then be determined from stick-fixed data by taking account of the reduction of tail effectiveness. Two graphical methods for determining the stick-free neutral point, which are extensions of the methods commonly used to determine the stick-fixed neutral point, are presented. A mathematical formula for computing the stick-free neutral point is also given. These methods may be applied to determine approximately the increase in tail size necessary to shift the neutral point (with stick free or fixed) to any desired location on an airplane having inadequate longitudinal stability.

PB 92857

Seeler, Henry W. K.

Development of the B. S. pressure breathing demand oxygen system. Mar 1948. 26p photos, drawings, graphs, tables Mi $2.00 Ph $3.75

1. Oxygen systems

PB 94303

Seidman, Oscar

Spinning of large airplanes. Oct 1944. 15p drawing Mi $1.75 Ph $2.50

Because large airplanes of the transport and bomber categories have been reported to have spun inadvertently, the available information on the subject has been reviewed. Results of model tests, as well as reports of full-scale-airplane spins, were considered. It is concluded that large airplanes should be intentionally spun because these aircraft

are not designed for the loads and speeds that may be encountered in the spin and recovery. If a large airplane is stalled, either inadvertently or for familiarization purposes, the pilot should apply sufficient down elevator to relieve the stall at the very first sign of stalling. The throttles should be closed if the airplane has started to roll off into a turn and the nose has dropped appreciably. Even after the airplane has rolled off on a wing, the pilot can regain control by promptly moving the stick forward and then using all three controls to return to level flight. For recovery from fully developed inadvertent spins, the rudder and wheel should be moved against the turn and, about 1/2 turn later, the control column should be moved forward. In a spin while on instrument flight, the ball bank indicator should not be relied upon to indicate the proper direction in which to move the wheel or rudder, but the rate-of-turn indicator should be used to determine the direction in which to move the rudder and to indicate when the rotation has stopped. The pull-out from the recovery dive should be started promptly to avoid building up excessive speed, but the pilot must be careful not to pull out too rapidly as the airplane might stall again or the structural loads might become excessive. In a spin the pilot would probably encounter difficulty in moving the controls and might have to make use of the tabs and other booster devices; however, he should be careful to avoid overcontrolling after spin recovery.

PB 94256

Spearman, M. Leroy

Wind-tunnel investigation of control-surface characteristics. XXIII. A 0.25-airfoil-chord flap with tab having a chord twice the flap chord on an NACA 0009 airfoil. Sep 1945. 58p drawings, graphs, table Mi $2.75 Ph $7.50

Wind-tunnel tests have been made to determine the aerodynamic section characteristics of an NACA 0009 airfoil with a plain flap having a chord 25 percent of the airfoil chord and a balancing tab having a chord 50 percent of the airfoil chord or 200 percent of the flap chord so linked that the tab would deflect at a given rate with respect to the flap. Three linkage ratios were tested on the model. The tests indicated that the flap and tab could be linked to give hinge-moment balance with flap deflection and with angle of attack and yet have greater lift effectiveness than a plain flap of similar size with a conventional balancing tab having a chord 20 percent of the flap chord linked to give hinge-moment balance with deflection only.

PB 92604

Squire, H. B.

Variation of profile drag with incidence. Jan 1946. 3p graph, table Available from British Information Services, 30 Rockefeller Plaza, New York 20, New York $.35

1. Airfoils—Drag—Gt. Brit.

—82073

PB 92574

Stephens, A. V. and Craig, D. L.

Experimental technique for boundary layer research at high Reynolds numbers. Aug 1939. 11p photos, drawings, graphs Available from British Information Services, 30 Rockefeller Plaza, New York 20, New York $.70

The pressure distribution over the upper surface of a special smooth wing on a "Hart" aeroplane was modified by means of a duct to represent that over the front part of the wing of a larger and faster aeroplane. The pressure minimum occurred at a distance of 0.6 of the chord from the leading edge and the local velocity there was 1.6 times the flight speed. Transition took place just in front of the pressure minimum.

PB 94336

Swanson, Robert S. and Crandall, Stewart M.

Electromagnetic-analogy method of solving lifting-surface-theory problems. May 1945. 32p photos, drawings, graphs Mi $2.25 Ph $5.00

A method is suggested for making lifting-surface calculations by means of magnetic measurements of an electromagnetic-analogy model. The method is based on the perfect analogy between the strength of the magnetic field around a conductor and the strength of the induced-velocity field around a vortex. Electric conductors are arranged to represent the vortex sheet. The magnetic-field strength is determined by measuring, with an electronic voltmeter, the voltage induced in a small search coil by the alternating current in the wires representing the vortex sheet. Solutions of nonlinear lifting-surface problems may be obtained by placing the conductors representing the trailing vortices along the fluid lines (Helmholtz condition). A potential-flow solution for the distortion and rolling up of the trailing-vortex sheet may be obtained. By use of the Prandtl-Glauert rule, the lifting-surface theory may be adapted to include first-order compressibility effects. A comparison was made of the downwash determined by means of a preliminary electromagnetic-analogy model with the downwash obtained by calculation for an elliptic wing having an aspect ratio of 3. The accuracy of the magnetic measurements compared satisfactorily with the accuracy of the downwash calculations.

PB 94210

Swanson, Robert S. and Gillis, Clarence L.

Wind-tunnel calibration and correction procedures for three-dimensional models. Oct 1944. 52p photo, drawings, graphs, table Mi $2.75 Ph $7.50

Detailed methods are presented for determining the corrections to results from wind-tunnel tests of three-dimensional models for the effects of the model-support system, the nonuniform air flow in the tunnel, and the tunnel walls or jet boundaries. The procedures for determining the corrections are illustrated by equations and the required tests are

discussed. Particular attention is given to the parts of the procedures dealing with drag measurements. Two general methods that are used for determining and applying the corrections to force tests are discussed. Some discussion is also included of the correction procedures to be used for wake survey tests. The methods described in this report apply only to tests at subcritical speeds.

PB 92591

Temple, G. and Yarwood, Jennifer

Two-dimensional aerofoils and ducts with uniform velocity distribution. Feb 1944. 19p diagrs, graphs, tables Available from British Information Services, 30 Rockefeller Plaza, New York 20, New York $1.15

The purpose of this investigation is to determine the exact form of two-dimensional aerofoils and ducts which have unifrom velocity distributions over the greater part of their surfaces. The discontinuities which would exist at the leading and trailing edges if the velocities were uniform over the whole of the upper and lower surfaces respectively, are avoided by adding a short beak and tail, over which the velocities are equalized without any discontinuity. The calculation is completed for the case of the symmetric duct and it is found that the beak and tail are of negligible dimensions.

PB 92608

Thwaites, B.

Method of aerofoil design, Part I—Symmetrical aerofoils. May 1945. 11p graphs, tables Available from British Information Services, 30 Rockefeller Plaza, New York 20, New York $.70

The first part of the paper shows how to design a symmetrical aerofoil, the first approximation to whose velocity distribution at $C_L = 0$ is specified at a certain number of points. The work is purely computational. The second part shows how it is possible to design an aerofoil which will have, to a good approximation, a required velocity distribution at any lift coefficient. This work requires a certain amount of experience of aerofoils but no mathematical technique. The method is based on thin aerofoil theory: it is intended therefore for the practical design of modern conventional aerofoils, the velocity distribution over which is specified at various points by consideration of the many requirements of the aerofoil. Two examples are given to show the working and results of the method: and the reasons for the development of the method are given in the Introduction.

PB 94032

Turner, William N. and others

Compressibility effects on the longitudinal stability and control of a pursuit-type airplane as measured in flight. Oct 1945. 47p drawings, photos, graphs Mi $2.50 Ph $6.25

I. Airplanes, Fighter—Stability tests

—62073

PB 94363

Underwood, William J. and others.

Two-dimensional wind-tunnel investigation of 0.20-airfoil-chord plain ailerons of different contour on an NACA 651-210 airfoil section. Dec 1945. 56p photos, drawings, graphs, tables Mi $2.75 Ph $7.50

An investigation was made of three interchangeable sealed-gap 0.20-airfoil-chord plain ailerons of different contour on the NACA 65_1-210 airfoil section. The three aileron contours tested were the true airfoil contour, straight sides, and a beveled trailing edge. The effects of aileron contour on the section aerodynamic characteristics of the airfoil and aileron are presented herein. The results of the tests indicated that thickening or beveling the aileron trailing edge by the amount investigated would decrease the aileron effectiveness, the rate of change of section lift coefficient with section angle of attack, and the maximum section lift coefficient; would increase positively the rate of change of section hinge-moment coefficient with both section angle of attack and aileron deflection; would shift the aerodynamic center forward; and would cause no significant change in the section profile-drag coefficient with aileron neutral or in the increment of section pitching-moment coefficient induced by aileron deflection at constant lift. The balancing action of the aileron and the loss in aileron effectiveness caused by beveling the trailing edge were accentuated by the application of standard leading-edge roughness to the airfoil. The computed characteristics of the three sealed internally balanced ailerons, based on the data for the hinge-moment and seal-pressure-difference coefficients of plain ailerons, showed an appreciable effect of aileron contour on the hinge moments at the larger aileron deflections even though all three ailerons were computed to have the same hinge-moment slope at small aileron deflections.

PB 87200

U. S. Air Force.

Douglas: Towing and taxiing instructions -C-54 series. Oct 1947. 1p Mi $1.25 Ph $1.25

1. Nose gear 2. Airplanes—Taxiing 3. Airplanes—Towing 4. AAF TO 01-40NM-187

PB 87263

U. S. Air Force and U. S. Bureau of Aeronautics.

Handbook, erection and maintenance instructions: Army models P-82F and P-82G, airplanes. Sep 1947. 450p photos, drawings, tables Mi $9.00 Ph $56.25

1. Airplanes—Maintenance and repair 2. P-82F (Airplane) 3. P-82G (Airplane) 4. AN 01-60JJB-2

PB 87285

U. S. Air Force and U. S. Bureau of Aeronautics.

Handbook, flight operating instructions: Army models A-26B and A-26C, aircraft. Oct 1947. 5p drawings, tables Mi $1.25 Ph $1.25

1. Pilot handbooks 2. AN 01-40AJ-1

PB 88724

U. S. Air Force.
Handbook, operation, service and overhaul instructions: Maintenance stand assembly type A-1. Oct 1947. 6p drawing Mi $1.25 Ph $1.25
1. Stands, Maintenance 2. AAF TO 19-1-16B

PB 88722

U. S. Air Force.
Instructions for installation, operation and inspection of catapult, aircraft personnel T4E1. Oct 1947. 6p photos Mi $1.25 Ph $1.25
1. Aircraft catapults 2. AAF TO 11-1-95

PB 87273

U. S. Air Force.
North American: Modification of tail wheel installation—P-82B, P-82C and P-82D. Jan 1948. 4p drawings, table Mi $1.25 Ph $1.25
1. Tail wheels—Maintenance and repair 2. AAF TO 01-60JJ-11

PB 88725

U. S. Air Force.
Parts catalog: 18 Foot swamp glider. Oct 1947. 12p photos, drawings, tables Mi $1.75 Ph $2.50
1. Gliders—Maintenance and repair 2. AAF TO 19-85AE-4

PB 88852

U. S. Air Force and U. S. Bureau of Aeronautics.
Parts catalog: Hydraulic brakes, segmented rotor type. (Bendix). Jan 1948. 7p drawings, tables Mi $1.25 Ph $1.25

PB 87271

U. S. Air Force.
Parts catalog: Nose and tail wheels. Dec 1947. 19p photos, drawings, tables Mi $1.75 Ph $2.50
1. Nose wheels—Maintenance and repair 2. Tail wheels—Maintenance and repair 3. AAF TO 03-25BC-4

PB 87274

U. S. Air Force and U. S. Bureau of Aeronautics.
Parts catalog model B-50A, aircraft. Nov 1947. 490p drawings, tables Mi $9.00 Ph $61.25
1. Airplanes—Maintenance and repair 2. B-50 (Airplane) 3. AN 01-20ELA-4

PB 87284

U. S. Air Force.
Republic: Modification of main landing wheel brakes—XP-84, YP-84A and P-84B. Nov 1947. 4p drawings Mi $1.25 Ph $1.25
1. Brakes, Aircraft 2. AAF TO 01-65BJ-11

PB 87288

U. S. Air Force.
Storage of aircraft -P-51 and F-6. Oct 1947. 1p Mi $1.25 Ph $1.25
1. Airplanes—Storage 2. P-51 (Airplane) 3. F-6 (Airplane) 4. AAF TO 01-1-7, App. C, rev.

PB 87439

U. S. Army Air Forces.
Set: Development and experimental, system, aircraft and field lighting, equipment laboratory. Feb 1947. 2p tables Mi $1.25 Ph $1.25
1. Airports—Lights 2. Airplanes—Lights 3. AAF TO 00-30-753

PB 87445

U. S. Army Air Forces.
Set: Repair, radiator and cooler, aircraft, engineering shops. Feb 1947. 2p table Mi $1.25 Ph $1.25
1. Tools, Machine 2. AAF TO 00-30-746

PB 87451

U. S. Army Air Forces.
Set: Research and experimentation, materials. Feb 1947. 18p tables Mi $1.75 Ph $2.50
1. Equipment, Air Forces 2. AAF TO 00-30-890

PB 87441

U. S. Army Air Forces.
Set: Training, individual, mechanic, instrument landing equipment. Apr 1947. 2p table Mi $1.25 Ph $1.25
1. Landing aids 2. AAF TO 00-30-1002

PB 94449

Vensel, Joseph R.
Flight measurements of the elevator deflections used in landings of several airplanes. Nov 1941. 8p drawings, tables Mi $1.25 Ph $1.25
A collection of data on the elevator deflections used in landings of several airplanes is presented in tabular form. The physical characteristics of these airplanes are also given. The elevator deflection used in landing some airplanes was found to be as much as 14.4° greater than that used to stall under the same flight and loading conditions.

PB 92575

Victory, Mary
Calculation of aileron reversal speed. Jan 1944. 17p graphs, tables Available from British Information Services, 30 Rockefeller Plaza, New York 20, New York $1.00
This report reviews British methods of calculating the aileron reversal speed of an aircraft, and discusses the values of the aerodynamic coefficients, the dimensions and stiffnesses, and the compressibility corrections to be made in such calculations.

PB 92560

Victory, Mary
Flutter at high incidence. Jan 1943. 29p graphs, tables Available from British Information Service, 30 Rockefeller Plaza, New York 20, New York $1.60.
This report describes work which has been done to investigate the possibility that the flexure-torsion flutter speed of a wing may be less at high incidences than at low incidences, and that this decrease may be due primarily to reduction of

aerodynamic torsional damping with incidence. The main discussion is contained in Part I, but the evidence dealt with here is obtained from test made at relatively very low Reynolds numbers. Part II, however, discusses the application of the results to full scale, and is based on more recent tests at larger Reynolds numbers. It is concluded that for modern aircraft the variation of critical speed with incidence is likely to be small.

PB 92597

Walker, P. B. and Clegg, A. W.

Technique of wing resonance tests. Feb 1939. 17p Available from British Information Services, 30 Rockefeller Plaza, New York 20, New York $1.00
The resonance tests described in this report are intended primarily to provide data for the estimation of flutter speeds, and in particular for the determination of neutral wing frequencies and corresponding modes of deformation. The tests are conducted on a complete aircraft elastically supported. Excitation is provided by a vibrator attached to the fuselage. The relatively simple apparatus required is described, together with the procedure for measuring frequencies and modes of deformation. A convenient routine is also given for the analysis of observations and for the presentation of data in the form required for subsequent estimation of flutter speed. The method of testing described has been well tried out at the Royal Aircraft Establishment on aircraft up to 20,000 lb. weight, but there are reasons to suppose that with minor adaptation it could be applied to much larger aircraft. It has also been established that similar methods are applicable to fuselage and empennage vibrations, as well as to the wing vibrations which are the main concern of this report.

PB 94245

Walker, Walter G.

Notes on unusual V-G records from transport airplanes. Aug 1944. 20p graphs, tables Mi $1.75 Ph $2.50
Unsual V-G records obtained on transport airplanes, which are defined in this report as records of accelerations experienced in flight that resulted from causes other than atmospheric gusts, have been studied and the basis of interpretation of these records is explained. The results of the study of the velocity-acceleration data of this data of this class of unusual records are compared with the results of a study of gust-loads data made in 1942. It is shown that the 1942 results are not changed by the results of this report. Atmospheric-gust data and the data of unusual V-G records that result from maneuvers and from combinations of gusts and maneuvers should be studied separately so that they may be subsequently compared to determine the respective load effects of gusts and maneuvers on the airplane structure. Supplementary information to permit the proper analysis of the data is very important

—82073

PB 92639

Watson, E. J.

Formulae for the computation of the functions employed for calculating the velocity distribution about a given aerofoil. May 1945. 8p tables Available from British Information Services, 30 Rockefeller Plaza, New York 20, New York. $.70
In order to determine the velocity distribution about an arbitrary aerofoil, it is necessary to evaluate the functions ψ', ξ' (in the notation of aerofoil theory) when ψ is given numerically. If the values of ψ are specified at 2N points equally spaced about the circle into which the aerofoil is transformed, the formulae obtained here may be used to calculate these functions at the same points. Formulae are also given for calculating the integrals of ψ or ξ, since these have application to the design of aerofoils by Thwaites's numerical method. The simplicity of the formulae for ψ', ξ and ξ' enables the effect on the velocity distribution of a local change of shape readily to be determined by making N large. This is discussed in § 3. The formulae are collected in the Appendix, and a table of the coefficients for the case N = 20 is given.

PB 92565

Williams, D. H. and others.

Tests on a 16% Handley-Page Aerofoil with 20% slotted flap in the compressed air tunnel. Aug 1938. 22p drawings, graphs, tables Available from British Information Services, 30 Rockefeller Plaza, New York 20, New York $.90
A 16 per cent wing has been tested with a slotted flap over a range of Reynolds numbers from 0.3×10^6 to 7×10^6, with the flap at 0°, 15°, 45° and 60°. Results are also given for the basic wing without slot and for the wing with flap at 60° with the slot filled in. The maximum lifts for flap at 0°, 15°, 45° and 60° are 1.460, 1.992, 2.405 and 2.152 respectively at $R = 7 \times 10^6$. With the gap closed the maximum lift for 60° flap is 2.323. Below $C_L = 1$, the profile drag of the basic wing is about 3 per cent lower than that of the wing with slotted flap with flap at 0°.

PB 92659

Williams, D. H. and others.

Tests on a tapered wing (NACA 23012) with and without sweepback in the compressed air tunnel. May 1945. 41p drawings, graphs, tables Available from British Information Services, 30 Rockefeller Plaza, New York 20, New York $2.20
Test have been made on two tapered wings, with sections based on NACA 23012, one straight and the other with 28.4 deg. sweepback, over a range of Reynolds number from 0.3×10^6 to 5×10^6. The wings were identical but for sweepback. Three different sets if wing tips were tested. In addition, each model was tested with vertical fins at the wing tips, set parallel to the centre section of the wing and inclined 7 1/2° in and out. At $C_L = 0.1$,

without vertical fins, C_{D_0} was less for the straight than for the sweptback wing; with vertical fins, C_{D_0} was greater for the straight than for the sweptback wing, except when the fins were inclined 7 1/2°, trailing edge out. At low values of C_L, the vertical fins increase the profile drag. Above $C_L = 0.4$, C_{D_0} was less with the vertical fins at 0° than without them. In all cases, there was a marked drop in $C_{L\ max}$ above $R = 2 \times 10^6$ for the sweptback wing. There was no corresponding drop for the straight wing.

PB 94294

Zalovcik, John A.

Flight investigation of boundary-layer and profile-drag characteristics of smooth wing sections of a P-47D airplane. Oct 1945. 28p photos, graphs Mi $2.00 Ph $3.75

A flight investigation was made of boundary-layer and profile-drag characteristics of smooth wing sections of a P-47D airplane. Measurements were made at three stations on the wing: boundary-layer measurements were made on the upper surface of the left wing in the slip-stream at 25 percent semispan; pressure-distribution measurements were made on the upper surface of the left wing at 63 percent semispan; and wake surveys were made at 63 percent semispan of the right wing. The tests were made in straight flight and in turns over a range of conditions in which airplane lift coefficients from 0.15 to 0.68, Reynolds numbers from 7.7×10^6 to 19.7×10^6, and Mach numbers from 0.25 to 0.69 were obtained. The results of the investigation indicated a minimum profile-drag coefficient of 0.0062 for the smooth section at 63 percent semispan. At the highest Mach number attained in the tests, the critical Mach number was exceeded by at least 0.04 with no evidence of compressibility shock losses appearing in the form of increased width of the wake or increased profile-drag coefficient. For flight conditions approaching the critical Mach number, variations in Mach number of as much as 0.17 appeared to have no effect on the profile-drag coefficient. In the slipstream, transition occurred at least as far back as 20 percent chord on the upper surface at low lift coefficients.

PB 94302

Zalovcik, John A. and Skoog, Richard B.

Flight investigation of boundary-layer transition and profile drag of an experimental low-drag wing installed on a fighter-type airplane. Apr 1945. 33p photos, drawings, graphs, tables Mi $2.25 Ph $5.00

A boundary-layer-transition and profile-drag investigation was conducted in flight by the National Advisory Committee for Aeronautics on an experimental low-drag wing installed on a P-47 airplane designated the XP-47F and supplied by the Army Air Forces. The wing incorporates airfoil sections that vary from an NACA 66(215)-1(16.5), $a = 1.0$ at the plane of symmetry to an NACA 67(115)-213, $a = 0.7$ at the tip. The surface of the wing as constructed was found to have such a degree of waviness that it had to be refinished in order to obtain the performance generally expected of low-drag airfoils. Measurements were made at a section outside the propeller slipstream with smooth and with standard camouflage surfaces and on the upper surface of a section in the propeller slip-stream with the surface smoothed. Tests were made in normal flight—that is, in level flight and in shallow dives—at indicated airspeeds ranging from about 150 to 300 miles per hour and in steady turns at 300 miles per hour with normal accelerations from 2_g to 4_g. These speed and acceleration limits were imposed by structural considerations. The tests in normal flight covered a range of section lift coefficient from about 0.58 to 0.15, of Reynolds number from about 9×10^6 to 18×10^6., and of Mach number from about 0.27 to 0.53. In the tests in turns at 300 miles per hour, the range of section lift coefficient was extended to 0.63. The results for the section with smooth surface outside the slipstream were in reasonable accord with the performance expected of low-drag airfoils and indicated a minimum profile-drag coefficient of 0.0045, which corresponded to the most rearward position of transition observed at about 50 percent of the chord on the upper surface. With a standard finish, a minimum profile-drag coefficient of 0.0063 was obtained. The results obtained in turns with the smooth surface showed an increase of about 6 to 14 percent in the profile-drag coefficient above that obtained in normal flight at lower Mach numbers and corresponding lift coefficients; whereas, with the standard finish, no increase was observed. The results on the smooth upper surface of the wing section in the slipstream indicated that, with normal engine operation, the most rearward position of transition was between 20 and 25 percent chord. The attempt to measure the profile drag of the smooth upper surface by means of a half-wake trailing-edge rake was not successful because a large lateral component of boundary-layer flow existed at the trailing edge of this section.

Instruments

PB 94525

Bemis, John R. and Houghton, Henry G.

Instrument for the determination of rain densities in flight. May 1943. 27p photos, drawings, graphs, tables Mi $2.00 Ph $3.75

The work described in this report falls naturally into two parts. It was first necessary to design and to install proper pumping and spraying equipment in a wind tunnel to simulate flight conditions in heavy rain. This also involved the development of a standard method for the measurement of the rain density produced in the tunnel. The second part of the work comprised the development of the rain density instrument and its calibration. The end result is an instrument which operates on the kinetic energy of the raindrops and in effect measures the ratio of the mass of water to the mass of air.

PB 94072

Dallas, Thomas and others.
A preignition indicator for aircraft engines. Feb 1945. 13p photo, drawings Mi $1.75 Ph $2.50
I. Engines, Aircraft—Performance 2. Instruments, Aeronautical

PB 93975

Gt. Brit. Ministry of Supply
Aircraft process specification: Manufacture of carbon monoxide indicator tubes mark III. Feb 1948. 14p drawings Available from British Information Services, 30 Rockefeller Plaza, New York 20, New York $.35
I. Tubes, Indicators—Specifications—Gt. Brit.

PB 92581

Guinand, A. P.
General methods of navigation by position lines at any time intervals, with application to the air position indicator. Mar 1944. 8p diagrs Available from British Information Services, 30 Rockefeller Plaza, New York 20, New York $.45
I. Navigation—Aerial—Gt. Brit. 2. Indicators, Air position—Gt. Brit.

PB 93616

Kappauf, William E. and Smith, William M.
Design of instrument dials for maximum legibility: II. A preliminary experiment on dial size and graduation. Jul 1948. 20p photos, graphs, tables Mi $1.75 Ph $2.50

PB 94088

Krebs, Richard P.
An electronic indicator for angular velocity and acceleration. Aug 1944. 14p drawings, graphs Mi $1.75 Ph $2.50
I. Instruments, Aviation

PB 93083

Maihak, H., A. G., Hamburg, Ger.
Drawing of an instrument for measuring of shear stress on aircraft. 1944. 5f (Text in German) Mi $1.25 Enl Pr $2.50
See PB 93083s for abstracts. 1p. Mi $1.25 Ph $1.25
I. Shear stress—Germany 2. Airplanes—Stress analysis—Germany 3. Micro BIOS FD 3713/47, Frames 1-4

PB 94153

Nettles, J. Cary and Tucker, Maurice
Construction of wire strain gages for engine application. Dec 1943. 18p photos, diagrs, drawings, graphs Mi $1.75 Ph $2.50
Detailed instructions are given for winding, baking, and mounting a phenolic resin-impregnated, bobbin-type wire strain gage that consists of Advance wire wound around a paper form. A brief description of some test equipment useful for establishing the merits of the techniques used in gage construction has been included. Gages of the bobbin type were found suitable for applications on internal-combustion engines inasmuch as their performance was satisfactory over a temperature range considered ample for most engine tests, their characteristics were such that they were unaffected by hot engine oil, and their construction was relatively simple. The effect of gage length upon the strain-gage constant of the bobbin-type strain gage was found to be negligible for gage lengths greater than 3/8 inch.

PB 88865

U. S. Air Force and U.S. Bureau of Aeronautics.
Handbook: Overhaul instructions for types J-3 and J-4 attitude gyro indicators. (Sperry). Jan 1948. 42p photos, drawings, tables Mi $2.50 Ph $6.25
I. Indicators, Gyro altitude

PB 88726

U. S. Air Force and U. S. Bureau of Aeronautics.
Handbook, operation and service instructions: Calibration Kit model EC-2 (Cox and Stevens Aircraft Corp.). Aug 1947. 22p photos, tables Mi $2.00 Ph $3.75
I. Calibration—Equipment 2. AN 17-15DA-1

PB 87269

U. S. Air Force and U. S. Bureau of Aeronautics.
Handbook, overhaul instructions: Bank and turn indicator USAF type C-5. Nov 1947. 17p drawings, tables Mi $1.75 Ph $2.50
I. Indicators, Turn and bank 2. AN 05-20HE-4

PB 87266

U. S. Air Force and U. S. Bureau of Aeronautics.
Handbook, overhaul instructions: Type A-1 alternator engine driven. Nov 1947. 18p photos, drawings, tables Mi $1.75 Ph $2.50
I. Alternators 2. AN 03-5AF-13

PB 87293

U. S. Air Force and U. S. Bureau of Aeronautics.
Parts catalog: Magnesyn fuel pressure indicator, type C-25, Magnesyn fuel pressure transmitter, type E-4. (Eclipse-Pioneer). Oct 1947. 7p photos, diagr, drawings, tables Mi $1.25 Ph $1.25
I. Indicators, Pressure—Parts 2. Transmitters, Pressure—Parts 3. AN 05-70D-9

PB 87440

U. S. Army Air Forces.
Kit: Mechanic, instruments, experimental, ground communications. Feb 1947. 4p tables Mi $1.25 Ph $1.25
I. Instruments, Electronic 2. AAF TO 00-30-782

PB 87282

U.S. Army Air Forces and U.S. Bureau of Aeronautics.
Parts catalog for aircraft voltmeter type C-2 (Model 8AW42VABI). Sep 1947. 5p photos, drawings, tables Mi $1.25 Ph $1.25

1. Voltmeters—Maintenance and repair 2. AN 05-60A-6

PB 87283

U. S. Army Air Forces and U. S. Bureau of Aeronautics.

Parts catalog for pressure regulating valve type M-4. Sep 1947. 3p photos, drawings Mi $1.25 Ph $1.25

1. Valves, Regulator 2. AN 03-30AG-3

PB 87443

U. S. Army Air Forces.

Set: Instrumentation, flight test, aircraft. Feb 1947. 37p tables Mi $2.25 Ph $5.00

1. Instruments, Aeronautical—Maintenance and repair 2. AAF TO 00-30-1032

PB 92481

U. S. Bureau of Ships.

Indicators: Gyro horizon, non-tumbling, electric. Bureau of Aeronautics specification. Apr 1948. 18p diagr, tables Mi $1.75 Ph $2.50

1. Indicators, Gyro horizon

PB 93429

Warrick, Melvin J. and Grether, Walter F.

Effect of pointer alignment on check reading of engine instrument panels. Jun 1948. 33p graphs, tables Mi $2.25 Ph $5.00

check NACA reports.

Engines and Propellers

PB 94425

Bartlett, Walter A.

Wind-tunnel tests of a dual-rotating propeller having one component locked or windmilling. Jan 1945. 26p photos, drawing, graph Mi $2.00 Ph $3.75

The effect on the propulsive efficiency of locking or windmilling one propeller of a six-blade dual-rotating-propeller installation was determined in the Langley propeller-research tunnel. Tests were made of both pusher and tractor configurations, with the unpowered propeller both leading and following the powered propeller, which was set at a blade angle of 40°. The maximum propulsive efficiency of the powered propeller in combination with the locked or windmilling propeller was, in all cases, lower than that of the powered propeller operating alone. The locked propeller gave greater maximum propulsive efficiencies when used as a contravane to remove rotational energy from the slipstream than when used as a means for imparting initial twist to the air. The windmilling propeller, however, was equally efficient both leading and following the driven propeller. In the tractor installation, smallest losses in maximum propulsive efficiency were obtained when the unpowered following propeller was locked at a blade angle of 90° and when the unpowered leading propeller was allowed to windmill at a blade angle of 45°. In the pusher installation, equal losses in maximum propulsive efficiency were obtained when the unpowered following propeller was either locked at 90° or windmilling at 55°, but the unpowered leading propeller gave smallest losses when windmilling at 55°.

PB 94087

Bell, Arthur H.

Continuous use of internal cooling to suppress knock in aircraft engines cruising at high power, Aug 1944. 22p table, graphs Mi $2.00 Ph $3.75

1. Engines, Aircraft—Knocking

PB 94040

Benser, William A. and Moses Jason J.

An investigation of the backflow phenomenon in centrifugal superchargers. Jun 1945. 38p graphs, photos, drawings Mi $2.25 Ph $5.00

1. Superchargers, Centrifugal

PB 94074

Biermann, Arnold E. and others.

Improving engine cooling with special baffles. Feb 1945. 66p photos, drawings, graphs Mi $3.00 Ph $8.75

1. Engines, Aircraft—Cooling 2. Baffles

PB 94165

Biermann, Arnold E. and Corrington, Lester C.

Relation of preignition and knock to allowable engine temperatures. Jul 1943. 49p drawings, graphs, Mi $2.50 Ph $6.25

The results are given of an investigation of some of the limitations that now prevent increases in the temperature level of engine cylinder heads, and a review of previous work in the field is included to supplement these results. Attention was given, in particular, to the effects of fuel knock and surface ignition on cylinder temperatures and the effects of cylinder temperatures on performance. Data were obtained from a Wright C9GC air-cooled cylinder and from a Lycoming O-1230 liquid-cooled cylinder. The analysis suggests that the relationship between the curve of ignition temperature of a fuel-air mixture plotted against density and the curve of hot-spot temperature at the time of ignition plotted against density may indicate whether dangerous preignition characteristics exist. The conclusion was reached that the general temperature level of the cylinder head may possibly be raised, even though surface ignition is present, provided that the fuels used have safe preignition characteristics. The data show that for short durations moderate audible knocking probably has little effect in creating hot spots or in causing surface ignition.

PB 94117

Bisson, Edmond E. and Kessler, Harold D.

Tensile-strength investigation of cast-iron piston rings of various strengths. Mar 1945.

29p photos, drawings, graphs, tables Mi $2.00 Ph $3.75

Tensile tests were made of NACA microtensile specimens of 0.050-inch diameter sectioned from finished cast-iron piston rings. Tests were also made on NACA microtensile and bar specimens sectioned from castings of 45,000 and 70,000 pounds per square inch nominal tensile strength. Photomicrographs are presented in the report to show the relation between graphite-flake size and tensile strength and radiographs are given to show shrinkage cavities in finished piston rings. Tests of NACA microtensile specimens from finished piston rings of various nominal tensile strengths showed the following results:

Nominal tensile strength (lb/sq. in.)	Average tensile strength from NACA microtensile tests (lb/sq. in.)
45,000	38,000 to 43,000
68,000	68,900
70,000	57,000 to 63,000

In general, the test results of NACA microtensile specimens were somewhat lower than the test results from bar specimens sectioned from the same castings. The metallographic examination showed that the lower strengths were accompanied by larger graphite-flake sizes. Shrinkage cavities had an adverse effect on the tensile strength of cast-iron rings of 95,000 pounds per square inch nominal tensile strength, as shown in radiographs and photomicrographs. The use of the NACA microtensile specimens in a tensile-strength investigation has the advantage of permitting the use of finished piston rings which have been cast in a production manner. On the basis of the agreement of test results from NACA microtensile specimens with results from bar specimens, it is believed that the tests on NACA microtensile specimens obtained from all portions of the castings or rings give representative tensile strengths.

PB 94102

Boegli, Charles P.

Hydrodynamic lubrication of near-infinite sliders such as piston rings. Oct 1944. 12p drawing, graphs Mi $1.75 Ph $2.50

The lubrication of a piston ring is treated as though the ring were rigid slider of finite width. An expression is obtained for pressure distribution which takes into account the effect of oil leakage from the ends of the ring and which has the convenient form of an end correction to the pressure-distribution formula for an infinite slider. The important formulas are summarized for convenience and two examples are included of their use in finding the pressure pattern over wide sliders. The method used in this paper is shown to be applicable to sliders of length-to-width ratios up to unity.

—62073

PB 94043

Brown, W. Byron

Computation of the mean tangential velocity of the air leaving the blade tips of a centrifugal supercharger. Aug 1945. 10p graph, drawings Mi $1.25 Ph $1.25

1. Superchargers, Centrifugal 2. Air flow

PB 94104

Brun, Rinaldo J. and others.

End-zone water injection as a means of suppressing knock in a spark-ignition engine. Sep 1944. 13p photos, diagrs Mi $1.75 Ph $2.50

An investigation has been made of the effectiveness of water injection into the combustion end zone of a spark-ignition engine cylinder for the suppression of knock. Pressure-time records obtained show that injection of water at 60° B.T.C. on the compression stroke at a water-fuel ratio of 0.3 rendered M-3 fuel as good as S-3 fuel from an anti-knock consideration. The optimum crank angle for injection of water into the end zone was found to be critical. As the injection angle was increased beyond the optimum, the quantity of water required to suppress knock increased to 3.6 water-fuel ratio at 132° P.T.C. The water quantity could not be increased beyond 3.6 water-fuel ratio because of injection-pump limitations; however, a further increase in the injection angle up to the earliest angle obtainable, which was 20° A.T.C. on the intake stroke, continuously increased the knock intensity. The engine operating conditions of the tests did not simulate those encountered in flight, especially with regard to the operating speed of 570 rpm. For this reason the results should only be regarded as of theoretical importance until further investigation has been made.

PB 94138

Clark, Thomas P.

Positive-replica technique for examining finished metal surfaces and its application to aircraft-engine cylinders. Sep 1944. 12p photos Mi $1.75 Ph $2.50

1. Cylinders—Examination

PB 94340

Coleman, Robert P. and others.

Evaluation of the induced-velocity field of an idealized helicopter rotor. Jun 1945. 26p drawings, graphs Mi $2.00 Ph $3.75

The work reported was undertaken in connection with a vibration study of helicopter rotors. The analysis of vibration and certain other problems require a knowledge not only of the average induced velocity but also of its distribution around the rotor disk. A concept of a simplified vortex system of a rotor wake is used in obtaining a formula for the normal component and induced velocity along the fore-and-aft diameter of the rotor disk. This

formula is intended to represent the main effect of the skewed wake in producing an uneven velocity pattern at the rotor. This induced velocity is expressed in terms of elliptic integrals as a function of the skew angle and of the circulation per unit axial length of the wake. A simple approximation to this function consisting of the first two terms of a Taylor expansion and giving the value and the slope of the induced-velocity function at the center of the disk is also presented. An approximate method of representing the induced velocity in terms of flight velocity for a given thrust has also been indicated by combining the present theory with Glauert's thrust equation. A comparison of the theory with corresponding values of induced velocities computed by Seibel's formula from pitching-moment data published by Wheatley and Bioletti is taken as evidence that the most significant factors have been taken into account.

PB 94377

Crigler, John L.

Effect of trailing-edge extension flaps on propeller characteristics. Jan 1945. 18p graphs Mi $1.75 Ph $2.50

An analysis was made to determine the effect on propeller performance of extension flaps added to the trailing edge of a propeller blade. A method of calculating the changes in the ideal angle of attack, the angle of zero lift, and the design lift coefficient of a propeller blade section having a trailing-edge extension flap was utilized to calculate the performance of a six-blade dual-rotating propeller with extension flaps varying up to 40 percent chord. The method was used to determine the angle that the flap extension must make with the chord in order to obtain a particular load distribution. Although the analysis in this report was made for a wind-tunnel propeller designed to operate at low advance-diameter ration, the method is directly applicable to any propeller section under any operating condition.

PB 94083

Ellerbrock, Herman H. and Goldstein, Arthur W.

Effect of humidity on several supercharger parameters. Nov 1941. 18p table Mi $1.75 Ph $2.50

1. Superchargers—Tests 2. Parameters

PB 94039

Ellerbrock, Herman H. and Goldstein, Arthur W.

Principles and methods of rating and testing centrifugal superchargers. Feb 1942. 39p drawings, photos, graphs Mi $2.25 Ph $5.00

1. Superchargers, Centrifugal

PB 94196

Ellisman, Carl

Effect in flight of the propeller cuffs and spinner on pressure recovery in front of a double-row radial aircraft engine in a twin-engine airplane. Mar 1944. 15p photos, drawings, tables Mi $1.75 Ph $2.50

1. Engines, Aircraft—Cooling

PB 94053

Engelman, Helmuth W. and White, H. Jack

Use of water injection to decrease gasoline consumption in an aircraft engine cruising at high power. Aug 1944. 8p graphs Mi $1.25 Ph $1.25

1. Engines, Aircraft—Fuel consumption

PB 94203

Essex, Henry A. and others.

Investigation of ice formation in the induction system of an aircraft engine. I. Ground tests. Mar 1946. 22p photos, drawings, graphs, tables Mi $2.00 Ph $3.75

Ground tests were conducted on a twin-engine fighter airplane to study icing of an induction system incorporating an exhaust-driven turbosupercharger. The ground tests were made to determine the disposition of free water in the induction system of the airplane, to determine the charge-air heat rise available from the turbosupercharger, and to correlate actual airplane-test results with those of laboratory tests. The icing characteristics of the airplane were studies at engine powers that varied from idling to take-off power with simulated-rain conditions of moderate, heavy, and excessive rain. The effect of the intercooler on the heat content of the charge air was studied at three power settings representative of the full range of engine power. Ambient-air temperature varied from 23° to 37° F. The results obtained in the ground tests indicate that the induction system is susceptible to serious icing only at low engine powers with high water-ingestion rates. The configuration of the induction system is such that the water is removed from the charge air before it reaches the carburetor deck, except when the engine is operated at manifold pressures of 40 inches of mercury and above in simulated excessive rainfall (2 grams/cu m). The ground-test results were in agreement with the curves of limiting-icing conditions of temperature and humidity determined in the laboratory. In the ground-test runs during which the intercooler flap was closed, approximately 85 percent of the heat added to the charge air by the turbosupercharger was available for ice prevention or de-icing at the carburetor deck.

PB 94047

Essex, Henry A. and Galvin, Herman B.

A laboratory investigation of icing and heated-air de-icing of a Chandler-Evans 1900 CPB-3 carburetor-mounted on a Pratt & Whitney R-1830-C4 intermediate rear engine section. Oct 1944. 35p tables, graphs, drawings, photos Mi $2.25 Ph $5.00

1. Carburetors, Aircraft—De-icing

PB 94198

Essex, Henry A. and others.

Laboratory investigation of icing in the carburetor and supercharger inlet elbow of an aircraft engine. II. Determination of the limiting—icing conditions. Dec 1945. 35p photos, graphs, tables Mi $2.25 Ph $5.00

The carburetor and engine-stage supercharger assembly of a fighter aircraft were laboratory-tested to determine the icing characteristics of the induction system under three simulated engine power conditions with varying carburetor-air temperature, relative humidity, simulated-rain injection, rain and fuel temperature, fuel-air ratio, and fuel of different distillation characteristics. All runs were of 15-minute duration, after which the carburetor and supercharger inlet elbow were visually inspected for ice formations. The limits of visible icing and serious icing, which is defined by a 2-percent reduction in air flow in a 15-minute test period, were found to form at progressively lower air temperatures and heat contents as engine power was increased. Relatively small accumulations of ice on the throttle plates caused more serious reductions in air flow than large deposits of ice in the supercharger inlet elbow. Turbulences below the throttles and circulation of fuel in the inlet elbow were responsible for severe cooling of the throttles and heavy deposits of ice on the under surfaces owing to the refrigeration effect of the fuel evaporation. This effect was less noticeable as throttle angle and air flow were increased for high power conditions. Variation of fuel-air ratio and fuel and water temperatures had no consistent effect on icing measured by the apparatus used during the test; reductions of relative humidity in the presence of free-water injection did, however, increase the severity of icing because of the corresponding reduction in the heat content of the air-water vapor mixture. Fuels of low volatility were found to produce less serious icing and the use during most of the tests of a more volatile fuel than is generally required for most airplanes produced conservative results.

PB 94131

Farmer, J. Elmo and Munger, Maurice

Fuel consumption corrected for cooling drag of an air-cooled radial aircraft engine at low fuel-air ratios and with variable spark advance. Feb 1945. 9p graphs Mi $1.25 Ph $1.25

1. Engines, Aircraft—Fuel consumption

PB 94111

Foster, H. H. and Ellerbrock, H. H.

Cylinder barrel cooling with bonded preformed copper fins. May 1941. 14p photos, drawings, graphs, table Mi $1.75 Ph $2.50

Preformed copper fins were furnace-brazed to a steel-cylinder barrel. The barrel was electrically heated and blower-cooled to determine the over-all heat-transfer coefficient. The experimental coefficients, based on the temperature of the steel, were approximately twice as large as the calculated coefficients for a similar steel cylinder with integral fins of the same dimensions. Improving the thermal bond, which can be accomplished by improving the method of assembly of the fins on the barrel before the brazing, can possibly increase the heat transfer of the barrel 27 percent above the values obtained. Both the copper fin and the steel barrel are annealed by the 1200° F furnace temperature required for brazing. Recent developments of high-frequency induction heating for the brazing operation are being investigated with a view to avoiding the incidental annealing which occurs in furnace brazing of the fins.

PB 94044

Galvin, Herman B. and Essex, Henry A.

Fluid de-icing tests on a Chandler-Evans 1900 CPB-3 Carburetor mounted on a Pratt & Whitney R-1830-C4 intermediate rear engine section. Oct 1944. 16p graphs, drawing Mi $1.75 Ph $2.50

1. Engines, Aircraft—De-icing

PB 94050

Galvin, Herman B. and Essex, Henry A.

A laboratory investigation of the icing characteristics of the Bendix-Stromberg carburetor model PD-12F5 with the Pratt & Whitney R-1830-C4 intermediate rear engine section. Oct 1944. 29p tables, graphs, photos, drawings Mi $2.00 Ph $3.75

1. Engines, Aircraft—De-icing

PB 94049

Goldstein, Arthur W. and Ellerbrock, Herman H., Jr.

Compressibility and heating effects on pressure loss and cooling of a baffled cylinder barrel. Jul 1944. 59p tables, graphs, diagr, drawings, photos Mi $2.75 Ph $7.50

2. Engines, Aircraft—Air cooling

PB 79359

Haines, A. B. and Diprose, K. V.

Application of the calculus of variations to propeller design, with particular reference to Spitfire VII with Merlin 61 engine. May 1943. 31p drawings, graphs, tables Available from British Information Services, 30 Rockefeller Plaza, New York 20, N. Y. $1.75

The purpose of the investigation was to find whether any modifications could usefully be made to the normal plan form and pitch distribution of a propeller. A simple method has been found for calculating the pitch distribution and plan form to give the optimum performance for any given set of conditions. This method has been applied to the design of a propeller for the Spitfire VII with Merlin 61 engine. The calculus of variations method can give useful indications of the best type of plan form and pitch distribution. Applying the method to the example chosen results in highly twisted blades having their maximum width fairly far out and with rather pointed tips. Designing the blade shape to

improve the efficiency at top speed results in an improvement of two to three percent over the range from top speed to climb conditions.

PB 92624

Haines, A. B.

Design of a fixed-pitch pusher propeller coupled to a free-running turbine. Mar 1946. 15p drawing, graphs, tables Available from British Information Services, 30 Rockefeller Plaza, New York 20, New York $.90

The report investigates the design and performance of a fixed-pitch pusher propeller directly coupled to a free-running turbine fitted in the exhaust duct of a turbine jet engine. The principal aim is to increase the available cruising thrust without adding appreciable weight or complication or raising the fuel consumption. A cruising speed of 400 m.p.h. at 20,000 ft. was considered in the present report and it was found that propulsive efficiencies of between 75 and 80 percent were achieved in this condition. Such a performance enabled the overall cruising thrust to be increased and hence the specific fuel consumption decreased by as much as 38 percent (over that of the simple jet) at the expense of an increase of only 34 percent in overall weight, i.e. the thrust/weight is slightly increased. Even at take-off, gains of overall thrust of 29 and 50 percent were obtained. The best propeller design will be determined by the aircraft application but it appears that it will be possible to limit the tip speed to avoid excessive noise or loss in performance at speeds above the design cruising speed. In short, from an aerodynamic point of view, the scheme appears very promising.

PB 92589

Hislop, G. S.

Variation of power with height of Merlin 46 engine as determined by flight tests on a Spitfire Vc. Sep 1943. 15p photos, graphs, tables Available from British Information Services, 30 Rockefeller Plaza, New York 20, New York $1.00

The variation of full throttle engine power with height was required on a Spitfire Vc (Merlin 46) for comparison with that obtained previously by the same method on a Hurricane II (Merlin XX). This, the locked propeller method, gives the ratio of full throttle powers at any two altitudes and in the present tests the ratio was obtained at the following altitudes:

37,000 ft. and 16,000 ft.
35,000 ft. and 16,000 ft.
33,000 ft. and 16,000 ft.

37,000 ft. represents the maximum height at which accurate performance measurements can be made with this aircraft. The variations of full throttle power with height of the Merlin 46 engine under still air conditions, expressed as a function of density is $P \propto (1.10\sigma - 0.10)$. This result is virtually the same as obtained from previous flight tests on Merlin engines. The observed supercharger compression ratio temperature coefficient is 0.00248 which compares with the accepted value of 0.002 for Merlin engines. In the absence of a torquemeter the electric constant-speed propeller which can be locked in pitch provides a very useful apparatus for determining the power law of an engine.

PB 94035

King. J. Austin and Klein, Harold

Performance characteristics of a junkers JUMO 211F engine supercharger with a DVL fully shrouded impeller and scroll diffuser. Feb 1945. 29p drawings, graphs, photos Mi $2.00 Ph $3.75

1. Superchargers—Tests

PB 94037

King, J. Austin and Regan, Owen W.

Performance of NACA eight-stage axial-flow compressor at simulated altitudes. Dec 1944. 16p graphs, drawings, photos Mi $1.75 Ph $2.50

1. Compressors, Axial—Tests

PB 94061

Kittel, J. Howard and Vierthaler, Walter A.

Experimental study of the coating found on scuffed cast-iron piston rings during operation in nitrided-steel cylinders. Nov 1944. 20p photos, tables Mi $1.75 Ph $2.50

Cast-iron piston rings that were run in nitrided-steel cylinder barrels under scuffing conditions showed a coating material on the scuffed areas. Only a few of the 14 etching reagents that were tried attacked the coating chemically, indicating good corrosion resistance. The Vickers hardness number of the coating material was found to be 640. The coating formed to a maximum thickness of about 0.0001 inch on the running surface of the piston rings. Evidence was found that steadite in the cost iron is associated with the formation of the coating. The coating also appears to contain voids or minute flakes of graphite. On the basis of results obtained from the use of Stead's reagent, it was found that the surfaces of cast-iron piston rings that have been run under normal operating conditions show more steadite than new rings and that scuffed rings show more steadite than either new or normally operated unscuffed rings.

PB 94052

Koenig, Robert J. and Engelman, Helmuth W.

A cooling correlation of the Wright R-2600-8 engine showing the effect of water as an internal coolant. Feb 1945. 43p tables, graphs, drawings, photo Mi $2.50 Ph $6.25

1. Engines, Aircraft—Cooling 2. Coolants—Tests

PB 81513

Lock, C. N. H.

Interference velocity for a close pair of contrarotating airscrews. Jul 1941. 15p graphs Available from British Information Services, 30 Rockefeller Plaza, New York 20, N. Y. $1.00

A method is developed of calculating the performance of a pair of contra-rotating airscrews, closely analogous to that described in R. & M. 2035 for a single airscrew. The assumptions made are considered to be theoretically justifiable if the interference velocities are so small that their squares and products may be neglected. It is hoped to compare calculations by the present method with experimental results. The equations have been applied by an approximate single radius method to give the difference in blade setting between the front and back airscrews for equal power input; a comparison is also made between the efficiencies of single- and contra-rotating airscrews.

PB 94199

Lyons, Richard E. and Coles, Willard D.

Laboratory investigation of icing in the carburetor and supercharger inlet elbow of an aircraft engine. III. Heated air as a means of de-icing the carburetor and supercharger inlet elbow. Dec 1945. 25p drawings, graphs, table Mi $2.00 Ph $3.75

A twin-barrel injection carburetor and a supercharger inlet elbow, forming part of the induction system of an aircraft engine, were used in laboratory investigation to establish quantitatively the relation between wet- and dry-bulb temperatures of the de-icing air and the time required to recover a given air-flow loss due to icing. Tests were run at one severe icing condition during simulated operation at normal rated power and at two severe icing conditions at 60-percent normal rated power. The air-flow recovery times were determined for dry and humidified de-icing air at various temperatures from 45° to 120° F. The time required to restore 95 percent of the maximum possible air flow after the initial air flow had been reduced by icing to approximately 2000 pounds per hour was found to correlate with wet-bulb temperature of the de-icing air and to decrease only slightly as the heated-air wet-bulb temperature was increased above 80° F. Under impact icing conditions, the metering characteristics of the carburetor were seriously affected, resulting in very irregular values of fuel-air ratio during the de-icing period. Under the same initial conditions of carburetor-air temperature and humidity, the ice formed at 60-percent power conditions required more time to remove under the same de-icing conditions than that formed at normal rated power conditions.

PB 92602

MacDougall, A. R. C.

Lift characteristics for thin Clark Y propeller sections at low and negative angles of incidence. Aug 1945. 5p graphs, tables Available from British Information Services, 30 Rockefeller Plaza, New York 20, New York $.35

This investigation was made to extend to lower and negative angles of incidence the existing data on the high-speed lift characteristics of a propeller. It is based on tests in the R.A.E. 24-ft. tunnel of the standard de Havilland Spitfire I propeller and of a thinned version, and provides lift data on Clark Y sections from 4.5 to 7 percent thick. The range of incidence covered is -3 to +2 deg. from zero lift. In this range the values of M_L (the critical Mach number for lift) from this analysis are much lower than would be expected by extrapolating linearly the lift data of R. & M. 2036. This suggests that care must be taken (when dealing with Clark Y and RAF 6 sectioned propellers, but not necessarily with high speed sectioned propellers) not to reduce the tip incidence to much in the hope of reducing the tip losses.

PB 79413

Majcherczyk, A. R. and Hislop, G. S.

Determination of propeller power coefficients by flight tests on a Spitfire Vc aircraft. Jan 1944. 18p graphs, tables Available from British Information Services, 30 Rockefeller Plaza, New York 20, N. Y. $1.15

Information on the power coefficients and propeller blade angles in flight is very scarce, and it was decided that some information should be obtained while a Rotol electrical variable pitch propeller, capable of being locked in pitch, was fitted to a Spitfire Vc aircraft. Power coefficients was obtained over a wide range of advance ratios and tip Mach numbers for six different propeller pitch settings. The highest pitch setting was that corresponding to diving at full throttle, 2,800 r.p.m., 400 m.p.h. A.S.I. at 20,000 feet, while the lowest was obtained by climbing full throttle at 3,000 r.p.m., 180 m.p.h. A.S.I. at 20,000 feet. Four intermediate settings were chosen arbitrarily. The calculation of the theoretical values of power coefficient from the known blade characteristics was undertaken by the Aerodynamics Division of the National Physical Laboratory and forms the subject of a separate report by that Establishment. Consistent values of propeller power coefficient over a wide range of flight and engine conditions can be obtained by this method. For future tests an automatic observer would be an improvement, and a higher accuracy in the propeller pitch measurement is desirable.

PB 94132

Manganiello, E. J. and Stalder, J. R.

Heat-transfer tests of several engine coolants. Feb 1945. 19p drawings, graphs, tables Mi $1.75 Ph $2.50

The relative cooling performance of water, commercial Prestone (ethylene glycol plus additives), and several ethylene-glycol and diethylene-glycol derivatives was obtained from tests conducted with a small electrically heated heat exchanger. The comparison of the cooling performances in this report covers only the turbulent-flow region under conditions where the effects of film boiling and free convection are negligible. Because all of the pertinent physical properties of the organic coolants were not available, the heat-transfer

coefficients obtained were plotted as a function of average coolant temperature and weight rate of coolant flow. The relative cooling performance of water is much higher than that of any of the organic coolants tested, being 4.4 times greater than that of Prestone at 200° F. Four of the coolants tested had cooling performances at 200° F ranging from 1.09 to 1.23 times that of Prestone.

PB 94079

Marble, Frank E. and others.

Study of the mixture distribution of a double-row radial aircraft engine. Oct 1945. 41p photo, drawings, graphs Mi $2.50 Ph $6.25
1. Engines, Aircraft—Fuel consumption 2. Fuels, Aviation—Tests

PB 94082

Marsh, Edred T.

Requirements for unit fuel-injection systems. Jul 1940. 20p tables, diagr, graphs Mi $1.75 Ph $2.50
1. Engines, Internal combustion—Fuel systems

PB 94103

Meyer, André J.

Elimination of galling of pendulum-vibration dampers used in aircraft engines. Aug 1945. 13p photos, drawing Mi $1.75 Ph $2.50
An analysis of the contact stresses existing in a damper installation of an aircraft engine indicated that galling could be eliminated by increasing the diameters of damper pins and holes. Tests were conducted on a damper assembly of a 12-cylinder V-type aircraft engine having pins enlarged 33 percent and holes sufficiently enlarged to maintain proper tuning. Whereas a standard damper was galled after 63 3/4 hours' operation, the modified damper disk was in perfect condition after 131 1/2 hours' operation. Torsional-vibration surveys indicated that the damping properties of the modified damper disk had not been impaired.

PB 94105

Moses, Jason J.

Effect of various carburetor throttle settings on the flow characteristics at the outlet of a supercharger inlet elbow. Jun 1945. 22p photos, drawing, graphs Mi $2.00 Ph $3.75
An investigation has been conducted to determine the effect of varying the carburetor throttle settings on the flow characteristics at the outlet of the supercharger inlet elbow. Air-flow tests were made at carburetor throttle settings of full open, and 15°, 30°, and 45° closed. The carburetor throttle setting had an appreciable effect on the turbulence and the velocity distribution at the inlet to the supercharger. For a limited range of carburetor throttle settings, small chnages in the throttle setting may cause large changes in the velocity distribution at the elbow outlet. The results of this investigation are limited to carburetor-elbow combinations in which the carburetor has a single throttle valve that closes when the downstream edge moves toward the inside of the elbow.

PB 94077

Mulcahy, B. A. and Zipkin, M. A.

Tests of improvements in exhaust-valve performance resulting from changes in exhaust-valve and port design. Sep 1945. 23p drawings, graphs Mi $2.00 Ph $3.75
1. Valves, Exhaust—Tests

PB 94036

NACA Subcommittee on Supercharger Compressors.

Standard method of graphical presentation of centrifugal compressor performance. Aug 1945. 7p graphs Mi $1.25 Ph $1.25
1. Compressors, Centrifugal—Performance

PB 94038

NACA Subcommittee on Supercharger Compressors.

Standard procedures for rating and testing centrifugal compressors. Aug 1945 14p photos, drawings Mi $1.75 Ph $2.50
1. Compressors, Centrifugal—Tests

PB 94076

Nettles, J. C. and Meyer, Andre J.

Piston-ring vibration and breakage. Aug 1945. 25p drawings, diagrs, graphs Mi $2.00 Ph $3.75
1. Piston rings—Tests

PB 94097

Neustein, Joseph and others.

Effect of carburetor-air temperature on the cooling characteristics of a typical air-cooled engine cylinder. Sep 1945. 22p photos, graphs, tables Mi $2.00 Ph $3.75
An investigation was conducted to determine the effect of carburetor dry-air temperature on the cooling characteristics of a typical full-scale air-cooled engine cylinder mounted on a single-cylinder crankcase. The variable carburetor-air temperature tests, conducted at constant charge-air weight flow and constant cooling-air pressure drop, covered carburetor-air temperatures from 100° to 310° F at fuel-air ratios of 0.08 and 0.10. The NACA cooling correlation method was used as the basis for analysis. The effect of carburetor-air temperature on the cooling characteristics is shown by the variation of mean effective gas temperature with carburetor dry-air temperature. It was found that for the fuel-air ratios investigated the mean effective gas temperature varied about 1/2° F for the cylinder head and about 1/4° F for the cylinder barrel with each 1° F variation in carburetor dry-air temperature. The results obtained are believed to indicate a trend but the exact values are probably not applicable to other than the cylinder use for these tests. The observed variation in cylinder cooling due to the carburetor dry-air temperature was applied to the full-scale engine, and curves are presented for determining the mean effective

gas temperature of the cylinder head for given values of fuel-air ration, engine speed, and carburetor inlet-air temperature. Curves are also presented to show the change in head temperature resulting from a change in mean effective gas temperature.

PB 94108

Nowick, A. S. and Brockway, L. O.

Occurrence of iron oxides on cast-iron engine surfaces after operation. Feb 1946. 19p photos, diagrs, tables Mi $1.75 Ph $2.50

Surfaces of used cast-iron piston rings from various single-cylinder aircraft engine tests were examined by electron diffraction. In addition to α-iron and graphite, extra rings appeared in many of the diffraction patterns and were identified as diffraction rings of α-Fe_2O_3 and either Fe_3O_4 or γ-Fe_2O_3 (these two materials are indistinguishable by diffraction methods). In general, the oxide patterns were obtained to an appreciable extent from only the top compression ring of the piston-ring assembly; the other rings gave predominately a graphite pattern. The diffraction patern from a new ring showed α-iron with lesser quantities of graphite but never more than traces of any other materials. Examination of a cast-iron cylinder which had been operated for a long period of time showed that, relative to graphite and α-iron, iron oxides were present in continuously increasing amounts as the top of the piston stroke is approached. Specimens from the part of the cylinder below the region of ring travel showed no detectable quantities of oxides. It was concluded that iron oxides are formed on cast-iron surfaces during engine operation in amounts depending upon operating variables such as temperature, pressure on the surfaces, and exposure to corrosive agents in the combustion products. In the determination of the nature of a run-in surface on cast-iron piston rings it will be necessary to consider the formation of iron oxides.

PB 94042

Perl, W. and Tucker, M.

A general representation for axial-flow fans and turbines. Jun 1945. 14p diagrs Mi $1.75 Ph $2.50

I. Fans, Axial flow

PB 94093

Peters, Max D.

Effect of increasing the size of the valve-guide boss on the exhaust-valve temperature and the volumetric efficiency of an aircraft cylinder. Feb 1945. 21p drawings, graphs Mi $2.00 Ph $2.75

An exhaust-port design was developed that provides a heat-flow path of increases area from the valve stem to the outside surface of a Wright 09GC cylinder. The effects of the new port design on exhaust-valve temperature and volumetric efficiency were determined from single-cylinder engine tests. A reduction of 70° F in the exhaust-valve temperature was obtained with no decrease in volumetric efficiency or power output.

PB 94092

Pinkel, Benjamin and Rubert, Kennedy F.

Correlation of Wright aeronautical corp. cooling data on the R-3350-14 intermediate engine and comparison with data from the Langley 16-foot high-speed tunnel. Jan 1945. 21p drawings, graphs Mi $2.00 Ph $3.75

A comparison is made herein of the cooling-test data obtained by the Wright Aeronautical Corporation and by the NACA on the identical Wright R-3350-14 engine equipped with the same cooling pressure-tube installation. The Wright Aeronautical Corporation test was made in a test stand and the NACA test was made in the 16-foot high-speed tunnel. The comparison reveals the large difference in cooling pressure drop that may be obtained in different test installations with the identical engine and pressure-tube installation because of an injudicious choice of pressure-tube locations. The requirements of a good cooling pressure-tube installation are discussed.

PB 94113

Pinkel, Benjamin and others.

Cross-flow plate-type intercooler. Apr 1942. 51p photos, drawings, graphs, tables Mi $2.75 Ph $7.50

A mathematical analysis of plate-type intercooler design has been made for both turbulent and laminar flow. Charts are presented that show how the plate-type intercooler volume, weight, plate area, frontal area, and linear dimensions can be varied without changing the intercooler operating conditions. The relations between the intercooler operating conditions and the intercooler dimensional characteristics and weight are also given. The charts show that a large reduction in intercooler volume can be achieved with no change in intercooler operating conditions by reduction of the spacings between the plates and reduction of the dimensions in the directions of the charge-air and cooling-air flows. The dimension at right angles to the flow directions, however, is increased. A plate-type intercooler unit having plates spaced 0.025 inch was tested to check the validity of the heat-transfer and pressure-drop theories for air flow between very closely spaced plates. The theoretical and experimental results were in close agreement. For the same operating conditions this intercooler has approximately one-third the volume of the smallest commercial intercooler for which data could be found.

PB 94133

Reuter, J. George and Valerino, Michael F.

Comparison of intercooler characteristics. Nov 1942. 28p drawings, graphs Mi $2.00 Ph $3.75

A method is presented of comparing the performance, weight, and general dimensional characteristics of

intercoolers. The performance and dimensional characteristics covered in the comparisons are cooling effectiveness, pressure drops and weight flows of the charge and cooling air, power losses, volume, frontal area, and width. A method of presenting intercooler data is described in which two types of charts are plotted: (1) A performance chart setting forth all the important characteristics of a given intercooler and (2) a replot of these characteristics for a number of intercoolers intended to assist in making a selection to satisfy a given set of installation conditions. The characteristics of commercial intercoolers obtained from manufacturers data and of some computed designs are presented on this basis. A standard test procedure and instrumentation are suggested whereby comparable data may be obtained by different testing organizations.

PB 94172

Reuter, J. George and Valerino, Michael F.

Design charts for cross-flow tubular intercoolers charge-across-tube type. Jan 1941. 47p photos, drawings, graphs Mi $2.50 Ph $6.25

On the basis of current heat-transfer theory, equations are presented relating the various dimensions, the air mass flow, and the performance of a cross-flow tubular intercooler in which the charge flows across and the cooling air through the tubes. Based on these equations, design charts are presented from which the intercooler design characteristics and the intercooler performance can be quickly determined. A unit was tested consisting of six staggered banks, each consisting of 28 phosphor-bronze tubes having a length of 8 inches, an outer diameter of 0.313 inch, and a wall thichness of 0.006 inch. The spacing between the tubes was 0.012 inch. The performance obtained with this test unit closely checked the calculated performance and indicated that intercoolers of the annular type having a relatively small number of tube banks may be both practicable and efficient without the addition of excessive weight or volume to aircraft-engine supercharger installations. The performance of a cross-flow tubular intercooler is shown to be practically independent of the fuel-air ratio of the engine charge at a charge outlet temperature of 140° F.

PB 94128

Reuter, J. George and Manson, S. V.

Performance tests of NACA type A finned-tube exhaust heat exchanger. Aug 1944. 25p photos, drawings, graphs Mi $2.00 Ph $3.75

Tests have been conducted to determine the thermal and pressure-drop performance and, to a limited extent, the durability of a cross-flow, internally finned, tubular exhaust-heat exchanger designed at the Aircraft Engine Research Laboratory. The tests covered a range of exhaust-gas flows from 3500 to 7300 pounds per hour, cooling-air flows from 3500 to 9500 pounds per hour, and exhaust-gas temperatures from 800° F to 1550° F. The exhaust gas was produced in a gasoline combustion furnace. The results show that this exchanger transfers 255,000 Btu per hour at an exhaust-gas flow of 4000 pounds per hour and a cooling-air flow of 3000 pounds per hour for an entrance-temperature difference of 1500° F between the exhaust gas and the cooling air. The corresponding pressure drop of the cooling air is 4.3 inches of water at standard sea-level density and of the exhaust gas, 2.5 inches of water at sea-level pressure and 1500° F entrance temperature. After 90 hours of operation the test unit gave no indication of deterioration.

PB 94041

Ritter, William K. and others.

Performance comparison of two deep inducers as separate components and in combination with an impeller. Oct 1945. 20p graphs, photos, drawings Mi $1.75 Ph $2.50

1. Inducers

PB 94034

Ritter, William K. and Johnsen, Irving A.

Performance effect of fully shrouding a centrifugal supercharger impeller. Oct 1945. 22p drawings, graphs, photos Mi $2.00 Ph $3.75

1. Impellers—Tests

PB 94045

Ritter, William K. and Johnsen, Irving A.

Preliminary investigation of deep inducers as separate supercharger components. Nov 1945. 47p drawing, graphs, photos Mi $2.50 Ph $6.25

1. Inducers

PB 94205

Rollin, Vern G.

Effect of liquid and ice particles on the erosion of a supercharger-inlet cover and diffuser vanes. Jun 1946. 13p photos Mi $1.75 Ph $2.50

1. Superchargers—Erosion 2. Carburetors, Aircraft—Erosion

PB 94110

Rothrock, Addison M. and others.

Summary report on the induction of water to the inlet air as a means of internal cooling in aircraft engine cylinders. Aug 1942. 48p graphs, tables Mi $2.50 Ph $6.25

Tests of a Wright G-200 single cylinder were conducted to determine the effects of internal cooling by water induction on the maximum permissible power and output of an internal-combustion engine. For a range of fuel-air and water-fuel ratios the engine inlet pressure was increased until the fuel knocked. The data show that water is a very effective internal coolant, permitting large increases in engine power as limited by either knock or by cylinder temperatures.

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OF COMMERCE

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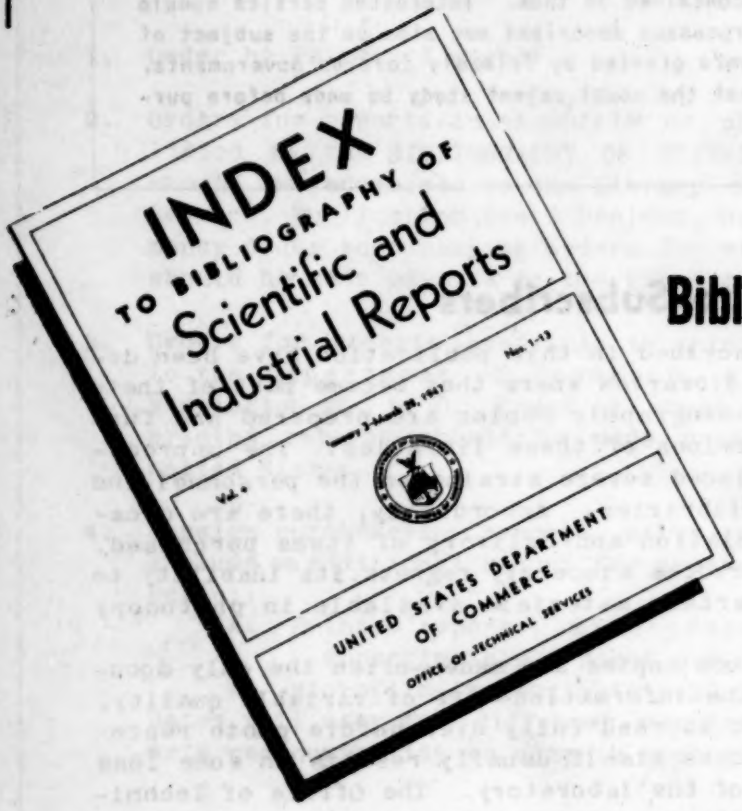

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